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Catalogue 1912-13

Announcements 1913-14

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UNIVERSITY CALENDAR

1913-1914

1913—September 23, *Tuesday*---------Summer Recess ends.
Examinations for Admission.
Registration of Students.
September 24, *Wednesday*-------First Semester begins.
October 4, *Saturday, 1:30 p. m.*--Re-examinations.
October 4, *Saturday, 2:30 p. m.*--Meeting of General Faculty.
November 17, *Monday*----------Farmers' Short Course begins.
November 27, *Thursday*---------Thanksgiving Holiday.
December 13, *Saturday*---------Farmers' Short Course ends.
December 15, *Monday*--------- Boys' Corn Club Course begins
December 20, *Saturday, 11:30 a.m.* Christmas Recess begins.
1914—January 3, *Saturday*----------Christmas Recess ends.
February 3, *Tuesday*----------First Semester ends.
February 4, *Wednesday*-------- Second Semester begins.
February 14, *Saturday, 2:30 p.m.*-Meeting of General Faculty.
March 7, *Saturday, 1:30 p. m*---Re-examinations.
June 6, *Saturday, 2:30 p. m.*----Meeting of General Faculty.
June 7 to 9----------Commencement.
June 7, *Sunday*----------Baccalaureate Sermon.
June 8, *Monday*----------Oratorical Contests.
June 9, *Tuesday*----------Graduating Day.
June 10, *Wednesday*----------Summer Recess begins.
June 12, *Friday*----------Examinations for Admission.

1913 CALENDAR 1914

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W. N. SHEATS, *Secretary*---*State Superintendent of Public Instruction*

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Director of the Agricultural Experiment Station and Superintendent of Farmers' Institutes and Extension Division.

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Dean of the College of Arts and Sciences.

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Dean of the College of Agriculture.

J. R. BENTON, Ph.D.,
Dean of the College of Engineering.

THOS. W. HUGHES, LL.B., LL.M.,
Dean of the College of Law.

J. A. THACKSTON, Ph.D.,
Dean of the Teachers' College.

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Professor of Ancient Languages,

C. L. CROW, M.A., Ph.D. (Göttingen),
Professor of Modern Languages.

*Grouped in the order of academic rank and seniority of appointment, excepting officers of administration.

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Professor of Horticulture.

P. H. ROLFS, B.S., M.S.,
Horticulturist to the Experiment Station.

E. W. BERGER, Ph.D. (Johns Hopkins),
Professor of Entomology and State Inspector of Nursery Stock.

J. M. SCOTT, B.S.,
Vice-Director and Animal Industrialist to the Experiment Station.

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Professor of Zoology and Bacteriology.

GEO. M. LYNCH, A.B.,
Professor of Elementary Education and Rural School Supervisor.

MAJOR E. S. WALKER, U.S.A. (Retired),
Commandant of Cadets and Professor of Military Science.

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Plant Physiologist to the Experiment Station.

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Chemist to the Experiment Station.

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Professor of Mechanical Engineering and Drawing.

J. R. WATSON, A.M.,
Entomologist to the Experiment Station.

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Professor of Law.

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Professor of Law.

R. W. THOROUGHGOOD, C.E. (Lehigh),
Professor of Civil Engineering.

C. L. WILLOUGHBY, B.Agr.,
Professor of Animal Husbandry and Dairying.

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Editor and Botanist to the Experiment Station.

O. F. BURGER, M.S.,
Assistant Plant Pathologist to the Experiment Station.

JAS. M. CHAPMAN, D.O.,
Assistant Professor of Oratory and Public Speaking.

S. S. WALKER, M.S.,
Assistant Chemist to the Experiment Station.

*----------
Assistant Professor of Botany and Bacteriology.

C. K. McQUARRIE,
Assistant Superintendent of Farmers' Institutes.

A. P. SPENCER, B.S., M.S.,
Assistant in University Extension Work.

M. B. HADLEY, A.B.,
Librarian and Instructor in History.

W. S. PERRY, A.B.,
Instructor in Physics and Electrical Engineering.

U. C. LOFTIN, B.S.,
Laboratory Assistant in Entomology to the Experiment Station.

F. M. O'BYRNE, A.B.,
Laboratory Assistant in Plant Physiology to the Experiment Station.

J. H. CARPENTER,
Assistant Chemist to the Experiment Station.

---

* To be selected.

G. E. PYLE,
Instructor in Gymnastics and Physical Director.

W. G. RANELS,
Foreman of Shops and Instructor in Mechanic Arts.

R. L. KING, B.S.A.,
Instructor in Agricultural Engineering.

J. OSCAR MILLER,
Instructor in Violin, Voice, and Director of Glee Club.

M. L. NEAL, A.B.,
Fellow and Assistant in Latin.

P. C. O'HAVER, A.B.,
Fellow and Assistant in English and Mathematics.

B. G. LANGSTON, A.B.,
Assistant in Mathematics.

A. G. DAVIS, B.S.,
Assistant in Chemistry.

R. S. BLANTON, L.I.,
Student Assistant in Mathematics.

K. H. GRAHAM,
Auditor and Bookkeeper.

OSCAR E. BAYNARD,
Curator of Museum.

MRS. S. J. SWANSON,
Matron.

MISS MARY McROBBIE,
Graduate Nurse in Charge of the Infirmary.

MISS BESSIE MURRAY,
Secretary to the President.

MISS ELEANOR G. SHAW,
Secretary to the Experiment Station.

MISS MARY DACOSTA,
Secretary to the College of Agriculture and Assistant in Correspondence Courses.

MISS NELL MURRAY,
Stenographer and Assistant to the Auditor.

MISS BESSIE V. GLOVER,
Stenographer to Extension Work.

MRS. G. E. PYLE,
Librarian to the Experiment Station.

A. G. COLCLOUGH,
Foreman of the Agricultural College Farm.

M. CREWS,
Foreman of the Experiment Station Farm.

L. BYRD,
Superintendent of Buildings and Grounds.

STANDING COMMITTEES OF THE FACULTY

1913-1914

The President of the University is *ex officio* a member of all Standing Committees.

ADMISSION AND CLASSIFICATION
Professors Farr, Keppel, Bernard, and Davis.

ATHLETICS
Professors Cox, Trusler, Walker, and Willoughby.

DISCIPLINE
Professors Flint, Hughes, Walker, and Cox.

GRADUATE WORK
Professors Anderson, Vernon, Benton, and Thackston.

LIBRARY
Professors Bernard, Farr, Benton, and Mr. Hadley.

PUBLIC FUNCTIONS
Professors Davis, Dickinson, Crow, and Floyd.

PUBLICITY
Professors Trusler, Willoughby, Crow, and Thoroughgood.

SCHEDULE
Professors Wiechardt, Flint, Thackston, and Vernon.

SELF-HELP
Professors Floyd, Dickinson, Wiechardt, and Anderson.

STUDENT ORGANIZATIONS
Professors Keppel, Cox, Hughes, and Thoroughgood.

UNIVERSITY PUBLICATIONS
Professors Crow, Benton, Farr, and Trusler.

MILITARY ORGANIZATION

MAJOR E. S. WALKER, U.S.A., Retired,
Professor of Military Science and Tactics.

FIELD, STAFF AND NON-COMMISSIONED STAFF

W. H. CROM ..... *Major*
T. B. BIRD ..... *First Lieutenant and Adjutant*
H. G. CLAYTON ..... *First Lieutenant and Quartermaster*
H. G. CONANT ..... *Sergeant-Major*

Company "A"	*Company "B"*	*Company "C"*
	CAPTAINS	
G. C. CROM	F. M. SWANSON	F. W. L. HILL
	FIRST LIEUTENANTS	
N. A. BECKER	U. BLOUNT	D. L. WHITE
	SECOND LIEUTENANTS	
C. A. MARTINI	M. G. HORTON	C. C. LAROCHE
	FIRST SERGEANTS	
D. M. BADGER	H. A. THALIMER	H. L. CAPPLEMAN
	SERGEANTS	
A. G. SHAW	L. W. RIGGINS	J. E. WILLIAMS
J. P. HALLOWES	R. N. WALKER	J. M. COARSEY
T. J. POPPELL	U. C. BAILEY	M. BROWN
J. A. MILLER	R. P. TERRY	N. E. HAINLIN
	CORPORALS	
N. MCELYA	R. L. JOYNER	B. BARBER
S. R. WARD	T. T. YARBROUGH	H. FREEMAN
S. P. HARN	W. E. EMBRY	C. A. ROBERTSON
A. D. CAMPBELL	E. B. HELM	W. A. WHITMIRE
J. H. HARRIS	W. H. TURNLEY	W. H. TAYLOR
	FIELD MUSIC	
E. FIELDING	G. F. KENDRICK	G. D. HAMILTON

GIFTS TO THE UNIVERSITY

The educational facilities of many of the State institutions of the South have in recent years been materially increased by substantial gifts. It is with deep gratitude that the University here acknowledges that it also has profited by this generosity. It feels confident that other broad-minded citizens will desire to help with their gifts in its upbuilding. All gifts, of whatever nature or value, will be gladly received and acknowledged.

The thanks of the University are due for the liberality shown by the donors of the following gifts:

The George Peabody Hall—The State University and Commonwealth of Florida here record their grateful appreciation of the gift of forty thousand dollars ($40,000) from the Peabody Board of Trust. This sum has been used for the erection of a building, named the "George Peabody Hall," in honor of the great benefactor of the South, and devoted exclusively to the training of teachers for the public schools of Florida. Because of this generous bequest the State is now prepared to offer, at the University, the best facilities for the training of superintendents, high school principals, and teachers for every grade of the public school system.

Chair of Elementary Education.—The Southern Education Board, by a gift of twenty-seven hundred and fifty dollars ($2,750), has provided for the salary of a Professor of Elementary Education, in the University, and Supervisor of Rural Schools, under the direction of the State Superintendent of Public Instruction. While this gift is made directly to the State Department of Public Instruction, the University participates largely in its benefits and here makes grateful acknowledgment of the same.

Chair of Secondary Education.—This opportunity is taken of acknowledging the annual gift of fifteen hundred dollars ($1,500) by the General Education Board of New York toward the establishment and maintenance of a Professorship of Secondary Education in the University.

Assistant Professorship of Chemistry.—Grateful acknowledgment is made of the gift of nine hundred dollars ($900.00) from the Florida Citrus Exchange, through its manager, Mr. W. C. Temple. This money is being used by the Agricultural Experiment Station in paying the salary of an assistant chemist, engaged in making analyses of citrus fruits.

Scholarships.—There is no method of contributing to the spread of higher education wiser or more beneficent than to give a worthy and ambitious young man the opportunity of availing himself of the advantages offered by his State University. The establishment of the following scholarships is gratefully acknowledged:

Children of the Confederacy Scholarship.—The Florida branch of the Children of the Confederacy, through the efforts of Sister Esther Carlotta of the United Daughters of the Confederacy, has established a scholarship paying one hundred and twenty-four dollars and fifty cents ($124.50) per annum, to be awarded to a lineal descendant of a Confederate soldier.

Kirby Smith Scholarship.—The Kirby Smith Chapter of the United Daughters of the Confederacy has established a scholarship of the annual value of one hundred dollars ($100.00), to be awarded to a lineal descendant of a Confederate veteran.

United Daughters of the Confederacy Scholarships.—Two scholarships, each worth one hundred and twenty-four dollars and fifty cents ($124.50) per annum, have been established by the United Daughters of the Confederacy of the State at large. The recipients must be lineal descendants of Confederate veterans.

High School Scholarship.—A distinguished citizen of Escambia County, desiring to bring about a closer affiliation between the senior high schools and the State University, has established a scholarship, tenable for four years and yielding two hundred dollars ($200.00) a year, to be awarded to a graduate of a senior high school, preferably of that of Escambia County.

Georgia Southern & Florida Scholarship.—The Universi-

ty makes grateful acknowledgment of a scholarship bestowed by the Georgia Southern & Florida Railroad, through Mr. M. V. Richards, the Industrial Agent of the Southern Railway System. This scholarship pays two hundred dollars ($200) per annum and is tenable for four years. It will be granted only to applicants residing in counties traversed by the G. S. & F. Railway.

The successful applicant will be required to pursue his courses in the College of Agriculture, University of Florida, and must be prepared for admission to the Freshman Class in that college. Further particulars relating to this scholarship may be obtained from Mr. M. V. Richards, Industrial Agent, Southern Railway, Washington, D. C., or from Dean J. J. Vernon, College of Agriculture, University of Florida, Gainesville, Florida.

The Athletic Field.—The University gratefully acknowledges a generous gift from a friend (whose name is withheld by request), to be used towards the equipment of the athletic grounds.

The Dupont de Nemours Powder Company, of Wilmington, Del., has presented to the University a collection of the various powders and explosives manufactured by them, put up in fine display cases, and forming a valuable addition to the technical chemical collection.

The E. O. Painter Fertilizer Company, of Jacksonville, Fla., has given three hundred dollars ($300.00) to the University, to be used by the Agricultural Experiment Station for apparatus needed in carrying on experiments with citrus fertilizers.

The Graham Collection of Birds' Eggs.—A large and valuable collection of birds' eggs has been presented to the University Museum by Mr. Lee Graham, of Gainesville, Fla.

The Catholic Encyclopedia.—Mr. Louis R. Chazal, of Ocala, Fla., has given to the University library "The Catholic Encyclopedia," a very valuable set of reference books.

GENERAL INFORMATION

HISTORY

Beginning with the earliest days of its existence as a territory Florida has always manifested great interest in higher education. The foundation of a State University was discussed by the Legislative Council as early as 1824. "In 1836 a University of Florida was proposed, of which Joseph M. White, Richard K. Call, Thomas Randall, J. G. Gamble, and others, were named as trustees, in the Act of Congress which authorized the sale of lands for its support." (Memoirs of Florida, 1,168.)

Upon its admission to the Union in 1845, Florida was granted by the general government nearly a hundred thousand acres of land, the proceeds from which were to be used for the establishment of two seminaries, one east and one west of the Suwannee River. In conformity with this the East Florida Seminary was established at Ocala in 1852, and the West Florida Seminary at Tallahassee in 1856. The former of these institutions was removed to Gainesville in 1866.

The State Constitution adopted in 1868, contained the following provision: "The Legislature shall provide a uniform system of common schools *and a University*, and shall provide for the liberal maintenance of the same. Instruction in them shall be free." (Art. VIII, Sec. 2.)

Pursuant to this action, the Legislature of 1869 passed "An Act to Establish a Uniform System of Common Schools and a University." The plan outlined in Section 11 for the University, the salient features of which appear below, would be a credit to any State, and shows ideals and purposes of which Florida may well be proud:

"6th. To use the available income and appropriations to the University or Seminary Fund in establishing one or more departments of the University at such place or places as may offer the best inducements, commencing with the Department of Teaching and Preparatory Department, etc.

"7th. To keep in view the establishment of a University on a broad and liberal basis, the object of which shall be to impart instruction to youth in the professions of teaching, medicine and the law; in the knowledge of the natural sciences; the theory and practice of agriculture, horticulture, mining, engineering, and the mechanic arts; in the ancient and modern languages; in the higher range of mathematics, literature, and in the useful and ornamental branches not taught in the common schools."

In 1883 the State Board of Education formulated a plan for co-ordinating the educational institutions already established in the State. In this plan the West Florida Seminary was denominated: "The Literary College of the University of Florida." On February 16, 1885, the Legislature passed "An Act Recognizing the University of Florida" and thus approved the action of the State Board. The Act reads:

"*Section* 1. That the Florida University, as organized at the city of Tallahassee, be recognized as the University of the State, and be known as the University of Florida; *provided*, there shall be no expense incurred by the State by reason of this Act.

"*Section* 2. That the University continue under its present organization and officers until further action be taken by the State Legislature as the case may require."

The State Constitution of 1885 contains the following: "The Legislature shall provide by general law for incorporating such educational, agricultural, mechanical, mining, transportation, mercantile, and other useful companies or associations as may be deemed necessary; but it shall not pass any special law on any such subject, and any such special law shall be of no effect; *provided*, however, that nothing herein shall preclude special legislation as to a University or the public schools, or as to a ship canal across the State." (Sec. 25.)

Meanwhile, in 1870, the State Legislature had passed "An Act to Establish the Florida Agricultural College," in accordance with the Act of Congress of 1862, entitled "An Act Donating Public Lands to the Several States and Territories which may Provide Colleges for the Benefit of Agriculture and the Mechanic Arts."

For the support of such institutions *Section* 1 of this Act grants to each State "an amount of public land, to be apportioned to each State in quantity to equal thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of 1860; *provided,* that no mineral lands shall be selected or purchased under the provisions of this Act."

In *Section* 4 it is required "that all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, *shall be invested in the stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks;* and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in *Section* 5 of this Act), and the interests of which shall be inviolably appropriated by each State which may take and claim the benefit of this Act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Section 5 defines the obligations which the States assume in accepting these grants:

"*First. If any portion of the fund invested,* as provided by the foregoing section, or *any portion of the interest thereon,* shall, by any action or contingency, *be diminished or lost, it shall be replaced by the State to which it belongs* so that the capital of the fund shall remain forever undiminished; and *the annual interest shall be regularly applied without diminution to the purpose* mentioned in the fourth section of this Act, . . .

"*Second.* No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pre-

tense whatever, to the purchase, erection, preservation, or repair of any building or buildings."

In 1872 an Act supplementary to the Act of 1870 was passed; and the State, having availed herself of the Act of 1862, received ninety thousand acres of land. The proceeds from the sale of this land were invested in "The Agricultural College Fund" bonds, the par value of which is one hundred and fifty-three thousand and eight hundred dollars ($153,800).

In 1873 a site for the college was selected in Alachua County, but nothing further came of this step. In 1875 the college was located at Eau Gallie, and a "temporary college edifice" was erected. No educational work having been accomplished there, the trustees determined in 1878 to remove the college, and a committee from the Board was appointed to decide upon a suitable situation. In 1883 the college was located at Lake City. The citizens of this place contributed one hundred acres of land and fifteen thousand dollars ($15,000), and the work of construction was pushed forward as rapidly as possible. Upon the completion of the main building in the fall of 1884, the college began its work of instruction.

In the second catalogue of this institution, dated "June, 1887," we find in the roster of the faculty "Rev. J. Kost, LL.D., Professor of Moral Philosophy and Geology, and Curator of Museum." A foot-note adds: "Rev. J. Kost, LL.D., is also Chancellor of the University of Florida." The exact nature of the relationship indicated by this may be inferred from the following statement, which is found in the same catalogue:

"At the annual meeting of the Board of Trustees of the Florida Agricultural College, held at the College, at Lake City, June 17, 1886, the following resolution was adopted:

"*Resolved,* That the Board of Trustees of the Florida Agricultural College believe that the educational interests of this State would be advanced and furthered by the consolidation of the Agricultural College and the Florida University, under the name of the University of Florida and Agricultural College, and that we recommend the same."

In the catalogue of the Agricultural College for the fol-

lowing year, the statement that Dr. Kost is "Chancellor of the University" is dropped; but the resolution quoted above is again printed. The following year the resolution also disappears.

In 1887, in accordance with the Act of Congress known as the Hatch Act, the Florida Agricultural Experiment Station was established as a department of the State Agricultural College. Three years later the Agricultural College became a beneficiary of the Morrill Act.

Inasmuch as the institution at Tallahassee had never taken advantage of the Act of 1885 and assumed the title of University, that Act was repealed and the title transferred in 1903. The act of 1903 reads as follows:

"*Be it Enacted by the Legislature of the State of Florida*:

"*Section* 1. That the Florida Agricultural College, as at present defined by law, be, and is hereby, changed to and shall be known as the University of Florida.

"*Section* 2. Any law inconsistent herewith be, and the same is hereby, repealed.

"*Section* 3. This Act to take effect upon its passage and approval by the Governor." (Approved April 30, 1903.)

The Agricultural College assumed at once the title of the University of Florida. In 1905, however, inasmuch as six institutions of higher education, all depending upon the State for support, had come one by one into existence, and inasmuch as these had failed to make sufficient differentiation among themselves and to separate their work sufficiently from that of the High Schools of the State, the Legislature thought it best to consolidate the activities of the six at two closely co-ordinated institutions. This Act of 1905, known as the "Buckman Act," had, as its practical effect, the merging of the Florida State College at Tallahassee, the Normal School at DeFuniak Springs, the East Florida Seminary at Gainesville, the South Florida College at Bartow, the Agricultural Institute in Osceola County, and the University of Florida, into the "Florida Female College" at Tallahassee, and the "University of the State of Florida." The management of these institutions is provided for in the Buckman Act:

"*Section* 13. That there is hereby created a 'Board of Control,' which shall consist of five citizens of this State, who shall be appointed by the Governor and their terms of office shall be for four years, except that, of the first board appointed under this Act, two members thereof shall be appointed for the term of two years and three members thereof shall be appointed for the term of four years."

Both the institutions, thus established, began their scholastic work in September, 1905.

In 1909 an Act of the Legislature changed the name of the one to the Florida State College for Women, of the other to the University of Florida.

LOCATION

Acting under powers conferred by the Buckman Act, the State Board of Education and the Board of Control in joint session, on the 6th day of July, 1905, selected the city of Gainesville as the location for the University. During the scholastic year of 1905-06, that is, until suitable buildings could be erected at Gainesville, it was found necessary to carry on the work of the University at Lake City. Since the summer of 1906 the institution has occupied its present site in Gainesville.

The advantages that Gainesville presents as the seat of the State University are numerous. It is centrally located and easy of access, being reached by the leading railroads of the State. It has well paved, lighted and shaded streets, an exceptionally pure water supply, and a good sewerage system. The citizens are energetic, progressive and hospitable. The moral atmosphere is wholesome, and for many years the sale of intoxicants has been prohibited by law. All the leading denominations have attractive places of worship. The Chautauqua and Bible Conference held during the winter form valuable adjuncts to the University.

GROUNDS AND BUILDINGS

The University occupies a tract of five hundred and eighty-nine acres, situated in the western extremity of Gainesville. Ninety acres of this tract are devoted to the

campus, drill-ground, and athletic fields; one hundred and seventeen acres are utilized for the farm of the College of Agriculture; the remainder is used by the Agricultural Experiment Station.

Eleven buildings have already been erected. These are, in the order of construction: Two dormitories, known as "Buckman Hall" and "Thomas Hall;" the Mechanic Arts Shop; Science Hall; the Agricultural Experiment Station Building; Engineering Hall; the Gymnasium; the Agricultural College Building; the dining hall or "University Commons;" Language Hall; and the "George Peabody Hall," the home of the Teachers' College and Normal School. They are lighted with electricity, supplied with city water, and furnished with modern improvements.

The two *Dormitories,* Thomas Hall and Buckman Hall, are brick and concrete structures, three stories in height, sixty feet in width and three hundred and two hundred and forty feet, respectively, in length. They are built in fireproof sections, each containing twelve suites of dormitory-rooms and on each floor of each section a shower-bath, lavatories and toilet.

The *Mechanic Arts Shop* is a one-story brick building, sixty feet long and thirty feet wide, with a wing thirty feet long and twenty feet wide. It provides for the shop work in the engineering, mechanic arts and manual training courses.

Science Hall is a brick and concrete building of two stories and a finished basement, one hundred and thirty-five feet long and sixty-six feet wide. It contains the class rooms and laboratories of the Departments of Botany and Horticulture, Chemistry, Physics, and Zoology and Bacteriology.

The *Experiment Station Building* is a brick and concrete structure, of three stories and a finished basement, one hundred and twenty feet long and sixty feet wide. It contains the offices and laboratories of the Agricultural Experiment Station.

Engineering Hall is a brick and terra-cotta structure, three stories high, one hundred and twenty-two feet long and seventy-three wide, providing offices, class rooms, laboratories, and drafting-rooms for the Departments of Civil

Engineering, Electrical Engineering, Mechanical Engineering, and Mechanic Arts.

The *Gymnasium* is a temporary wooden structure, one story high, sixty feet long and forty feet wide. It is provided with equipment for physical training, lockers, and showers. A swimming pool, thirty-six feet long, twenty-four feet wide, and from four and a half to seven feet deep, has recently been added.

The *Agricultural College Building* is a brick and concrete structure three stories high, one hundred and fifteen feet long and sixty-five feet wide. The building provides for class rooms, laboratories and offices for the Departments of Agronomy, Animal Husbandry, and Extension Work. One-half of the second floor is used at present as a general assembly hall.

The *University Commons* is a brick building of one story and a basement, one hundred and fourteen feet long and forty-two feet wide, with a wing forty-nine feet long and twenty-seven feet wide. It provides a large dining hall and kitchen.

The *Language Hall* is a brick and stone structure of three stories, one hundred and thirty-five feet long and sixty-six feet wide. It is the home of the College of Arts and Sciences, and provides class rooms and offices for the Departments of Languages, History, and Mathematics, together with the administrative offices of the University, and rooms for the use of the literary societies and the Young Men's Christian Association.

The *Teachers' College Building*, known as "George Peabody Hall," has been constructed with funds given by the Peabody Board of Trust. It is a brick building three stories high, one hundred and thirty-five feet long and seventy-two feet wide, and provides for the Departments of Education and Philosophy, and for the Teacher Training Work of the University.

VALUE OF THE UNIVERSITY PROPERTY.—The value of the property used for the work of the University is about $600,000.

ENDOWMENT

The annual income of the University, apart from legislative appropriations, is derived principally from three sources—"The Agricultural College Fund" bonds, yielding an annual interest of about seventy-seven hundred dollars ($7,700); one-half of the "Morrill Fund," amounting now to twelve thousand five hundred dollars ($12,500), and the "East Florida Seminary Fund," amounting to about two thousand dollars ($2,000). In addition to these funds, Congress has appropriated $25,000 more to each State for the purpose of promoting the work of institutions already beneficiaries of the Agricultural and Morrill Funds. One-half of this amount goes to the University of Florida. The entire annual income of the institution thus derived from various Federal grants amounts to thirty-four thousand and seven hundred dollars ($34,700). This does not include the Experiment Station funds.

EQUIPMENT

LIBRARY.—The University Library numbers about 15,000 volumes, including those in the Academic, Law and Scientific Departments. An effort is being made to place on the shelves all books extant relating to Florida history. Additional books are purchased under the direction of the library committee as fast as funds are available for that purpose.

In 1911 the State Legislature appropriated five thousand dollars ($5,000) for new books. The books have been selected and the money spent with the greatest care. The result has been greatly to increase the value of those courses which depend largely upon library materials. Valuable books have been presented to the Library from time to time by publishers, authors, and friends of the University, for which grateful acknowledgment is herewith made.

All books in this library are catalogued and shelved according to the Dewey system, making them readily available for reference. Students are encouraged to use the card catalogues, which are arranged alphabetically, both according to authors and to subjects, and to become familiar with the books themselves by free access to the stacks. The

librarian or student assistants are always in attendance to explain the arrangement of books and to give aid in reference work. A taste for literature and information is being developed in many students who have not had access to a good library before coming here, making this one of the great advantages of the college career.

As a designated depository of Federal documents, the library receives several hundred volumes of valuable government publications each year. Files are kept of all Florida State publications, and of the bulletins and reports of the Agricultural Experiment Stations throughout the Union.

In the reading-room are about seventy of the best general and technical periodicals for the students' use. The back numbers of these are bound and kept on file, and the early volumes purchased whenever they can be obtained and funds permit. Here also are received the leading newspapers of the State, and county papers are added to the list at the request of the students.

Beginning with the session of 1913-1914 the General Library will be housed on the first floor of Peabody Hall and a number of needed improvements will be made in the equipment.

MUSEUM.—The Museum occupies a large room on the second floor of Science Hall, and contains a small but well-selected collection of minerals; a number of fossils and casts, and a small but representative collection of the lower forms of marine life.

The Museum has recently been so fortunate as to acquire the splendid collection of birds and eggs accumulated by Mr. R. D. Hoyt, of Clearwater, Fla. This collection, which represents the work of years by Mr. Hoyt, contains over 200 mounted birds in most excellent condition, some 700 unmounted skins, and complete sets of about 500 species of North American birds. The collection is an especially valuable one since it contains many rarities, some of which it would be almost impossible to duplicate.

In addition a large collection of birds' eggs has been presented to the Museum by Mr. Lee Graham, of Gainesville. These collections along with a similar one lent to the

Museum by Mr. O. E. Baynard, will soon be placed in suitable cabinets in the Museum, where they will be available to the public.

Special efforts are being made to get together as complete a collection as possible illustrating the fauna and flora of the State, and any contributions will be appreciated.

LABORATORIES.—The following laboratories are maintained by the University:

The Botanical Laboratory contains enough dissecting microscopes and instruments, and Bausch and Lomb compound microscopes, magnifying from 80 to 465 diameters, for the individual use of the students.

There is a Zeiss binocular microscope, a large compound microscope of very high magnifying power, two demonstration microscopes, and a McIntosh stereopticon, with projection microscope attachment.

For work in histology there are hand microtomes, section knives, a sliding microtome, Millers' paraffin bath, and a supply of reagents, stains and mounts, while for studies in physiology there are germination boxes, nutrient jars, an osmometer, a clinostat, and a number of other pieces.

An herbarium has been started, to which students each year add specimens which they collect, identify and mount. There is a case of reference books and periodicals in the laboratory within easy reach of the students.

The Chemical Laboratory is equipped with all the necessary apparatus and material for instruction in general inorganic and organic, analytical and industrial chemistry, as well as for advanced work in the science. It includes two delicate balances, a latest model polariscope, microscope and spectroscope, ample platinum ware, in the form of crucible dishes, electrodes, wire and foil, and many special pieces of apparatus for illustrating (upon the lecture table) chemical principles.

The equipment is entirely modern in every respect and in the new rooms assigned to this department can be used to the best advantage. The stock of chemicals is abundant and complete.

The Dynamo Laboratory, providing for practical instruc-

tion on electrical machinery, occupies a portion of Engineering Hall.

The principal machines are a 10-KW Type ACS General Electric synchronous converter, a 2.5-KW General Electric Type IB direct current generator, a 1-HP Westinghouse Type R motor, a 1-KW synchronous motor, and two 2-KW Westinghouse Type S dynamos, designed to be used either as generators or as motors. The switchboard panel for each machine is placed near it, but is connected to terminals on a main distribution board for the whole laboratory. Power is supplied by a 10-HP single-phase Wagner induction motor, connected to the city alternating current supply, and driving the main shaft of the laboratory. The various machines are driven from this shaft, and can be thrown in or out by friction clutches.

The laboratory is also supplied with transformers, several types of arc lamps, and numerous measuring instruments of different ranges, chiefly of Weston make.

The Physical Laboratory is well equipped with apparatus, and meets the needs of such undergraduate work in physics as is usually carried on in the best American colleges. The western half of the ground floor of Science Hall is devoted to the Department of Physics. Its quarters include a lecture-room, 25 feet by 23 feet, with amphitheatered seats; an office and library room; a main laboratory room, 28 by 25 feet; an electrical laboratory, 30 by 14 feet; a battery room; an optical room, 23 by 10 feet, arranged so as to be effectively darkened; a work-shop; a store-room; and a private laboratory room, for research work. Water, gas and electricity from various circuits, are led to all of the rooms. The laboratory is provided with several brick piers, on foundations independent of the rest of the building, for the accommodation of instruments requiring special stability.

The Zoological and Bacteriological Laboratories are well equipped for the work of instruction. In addition to the necessary glassware and reagents, there are a number of high-grade microscopes; dissecting microscopes; two microtomes, one for celloidin, the other for paraffin sectioning;

paraffin bath; sterilizers, both wet and dry; warm and cool incubators; dark-ground illuminator; balances; centrifuge; breeding cages; anatomical preparations and models; a number of the Leukart-Chun zoological wall charts; one Leitz large compound microscope with mechanical stage and a full set of apochromatic objectives; and one Bausch and Lomb projecting lantern with accessories. The departmental library contains a number of the current periodicals as well as the more important text-books and reference works.

The Psychological Laboratory will have commodious quarters on the first floor of Peabody Hall. Six rooms will be given over to laboratory purposes; and when the laboratory is fully equipped, it will be one of the most efficient psychological laboratories in the South. It is expected that sufficient funds will be appropriated to equip it fully for next year's work. In addition to the apparatus for the regular experimental work in psychology, it is expected that there will be a complete equipment for carrying on the mental and physical tests in connection with the work in educational psychology offered by the Teachers' College. Some of the supplies have already been purchased.

The Mechanical Engineering Laboratory has a 50,000 pound testing machine for testing the strength of materials, a large and small vertical steam engine, a pressure blower, a fan blower, a boiler feed pump, an indicator, and a steam gauge tester, and it is expected to have these erected in the new laboratories at an early date. It is also expected that the large water tube boilers soon to be installed for the heating plant will be available for testing purposes in these laboratories.

The Computing Room is furnished with all necessary tables and a library of about two hundred reference books for use in connection with the work of the mechanical laboratories and draughting room.

The Draughting Room is equipped with substantial oak desks and possesses the necessary minor equipment to accommodate classes of twenty-four students. It has been carefully designed for the purpose and the aim is to make it a model of its kind.

SURVEYING INSTRUMENTS.—*The surveying instruments* consist of three surveyor's compasses, four wye levels, four transits, complete plane table, necessary rods, chains, tapes, etc., clinometers, pedometers, prismatic compasses, and range finders.

SHOPS.—The *Wood-Shop* is provided with lockers equipped with full set of tools for bench-work, such as chisels, squares, saws, gauges, etc. The wood-working machinery consists of nine wood-turning lathes, a planer, rip-saw, band-saw, and trimmer.

The *Machine-Shop* is equipped with an 18-inch Cady lathe, an 11-inch Seneca Falls lathe, a drill press, a Gray Planer, a No. 1 Brown & Sharpe Universal Milling Machine, a Springfield shaper, a small Barnes lathe, three emery wheels, grindstone, vises, machine-shop tools.

The *Forge-Shop* is equipped with six power-blast forges, one hand forge, six anvils, and a large supply of tools.

ATHLETIC EQUIPMENT.—The institution has provided a hard surfaced athletic field, including football gridiron, base-ball diamond, with grandstand and enclosed field, and ample tennis court facilities. A basket-ball court and swimming-pool are also located on the campus.

The equipment of the gymnasium represents an expenditure of some $3,000.00 and this collection of apparatus is probably unsurpassed in the South. All of the above is in charge of a competent athletic director.

GOVERNMENT AND REGULATIONS

ADMINISTRATION

BOARD OF CONTROL.—The general government of the University of Florida is vested by law in the Board of Control, which consists of five members appointed by the Governor of Florida from various parts of the State. Appointments to the Board of Control are made for a term of four years.

The Board of Control appoints the President, and upon the President's nomination, elects members of the Facul-

ties, directs the general policies of the University, supervises the expenditure of its funds, prescribes the requirements for admission, with the advice of the President and Faculties, and confers degrees upon recommendation of the President and Faculties.

PRESIDENT.—The direct administration of all affairs of the University is in the hands of the President, appointed by the Board of Control and acting under its authority.

DEANS AND DIRECTORS.—For the convenience of administration, the University is organized under the following divisions: The College of Arts and Sciences, the College of Agriculture, the College of Engineering, the College of Law, the Teachers' College, the Division of University Extension, and the Agricultural Experiment Station. Each college has as its executive head a dean, chosen from the Faculty of that college; the Division of University Extension and the Agricultural Experiment Station have as executive head a director. These officers are responsible to the President of the University.

UNIVERSITY COUNCIL.—The President and Vice-President of the University, the Deans of the several colleges, and the Director of the Experiment Station form a council of administration, with the following functions: To lay out new lines of work, inaugurate new enterprises in general, and prepare the annual budget; and to act as the judicial body of the general faculty on cases of general discipline not under the authority of the colleges, on new courses of study and changes in existing courses, bringing these matters before the Board of Control, and on questions of college action referred to it by any member of the general faculty.

FACULTY.—The General Faculty of the University includes all persons engaged in the work of instruction in the University, excepting laboratory assistants and under-graduate assistants to the professors. Under the leadership of the President it forms the general governing body in all matters of instruction and discipline.

The Faculty of each college consists of those members of the General Faculty who give instruction in that college.

It forms the governing body in matters of instruction and discipline in its college.

AGRICULTURAL EXPERIMENT STATION STAFF.—The Experiment Station Staff consists of all persons engaged in scientific work in the Agricultural Experiment Station. Under the leadership of the Director, it has authority in all matters of agricultural investigation and their publication.

STATE NURSERY STOCK INSPECTOR.—The State Nursery Stock Inspection, which was established by an Act of the Legislature of 1911, is a separate and distinct department under the jurisdiction of the Board of Control. The Act (*see* Laws of Florida, Chapter 6156) provides for establishing a system of inspection, regulating the sale and exchange of nursery stock, and for one Inspector and the necessary Deputies and Assistants. It provides further that the Inspector's office shall be in the Agricultural Experiment Station Building of the University.

DISCIPLINE

OFFICERS.—The immediate supervision of the general life of the student-body is in the hands of an *Officer in Charge,* who occupies quarters in the dormitory.

In each section of the dormitory a *monitor* maintains a general oversight and makes reports to the Officer in Charge. Monitors are appointed from among those students who are more than twenty-one years old.

OFFENSES AGAINST GOOD CONDUCT.—Any offense against good conduct, in the ordinary meaning of the word, renders a student liable to discipline, whether or not a formal rule against the offense has been published.

The following offenses will be treated with especial severity: Disrespect to an officer of the University; wanton destruction of property; gambling; debauchery or drunkenness, or having intoxicating liquors in possession on the University grounds.

HAZING.—No form of hazing will be tolerated in the University and all former students and candidates for admission are hereby notified that they will be required on matriculating to sign the following pledge:

"I hereby promise upon my word of honor, without any

mental reservation whatsoever, to refrain from all forms of hazing while I am connected with the University of Florida."

No student will be admitted to his room in the dormitories until he has matriculated and signed the above pledge.

THE HONOR SYSTEM.—Every student of the University is assumed to be a man of honor, and his word is accepted on all matters. In such rare cases as a student may prove not to be a man of honor, he is expelled, either by action of the Faculty, or by action of the Board of Governors of the student-body, consisting of the presidents of the different classes.

ABSENCE FROM THE UNIVERSITY.—No undergraduate student is permitted to be absent from the University over night without written permission from the Officer in Charge.

ABSENCE FROM CLASSES.—A student who accumulates ten unexcused absences from classes or drill for which he is scheduled, will be given a severe reprimand, and parent or guardian will be notified. Two additional unexcused absences will dismiss the student from the University. Ten unexcused absences from the chapel service will subject all students, except Seniors and those in the College of Law, to the same penalty.

ATTENDANCE UPON DUTIES.—A student who, without good cause, persistently absents himself from his University duties, is, after due warning, dishonorably dismissed for the remainder of the academic year. A student who, by reason of ill health or outside demands upon his time, finds it impossible to give regular attention to University duties, is requested to withdraw; but such request does not in any way reflect upon his good standing.

All delinquencies in University duties are reported to the Officer in Charge, who promptly brings them to the attention of the students, and requires a prompt explanation to be made. Careful records of all delinquencies are kept.

REGULATIONS CONCERNING STUDIES

QUANTITY OF WORK.—A minimum and maximum number of recitation hours (or equivalent time in laboratory

courses) per week is prescribed in each college, and no student may take less than the minimum or more than the maximum except by special permission of the Faculty of his college. In the College of Arts and Sciences these numbers are (not counting Military Science) 15 and 18 respectively; in the College of Agriculture 16 and 20; in the College of Engineering 15 and 23; in the College of Law 15 and 18; and in the Teachers' College 15 and 18.

In counting hours, two hours of laboratory work are considered equivalent to one hour of recitation.

AVOIDANCE OF CONFLICTS.—Studies must be so chosen as not to conflict, as shown on the printed schedule for the year.

ASSIGNMENT TO CLASSES.—Every student must appear before the Dean of his college at the beginning of each academic year for assignment to classes. An individual instructor has no authority to enroll a student in any course, except as authorized by the Dean of his college.

CHOICE OF STUDIES.—The choice as to which one of the various curricula is to be pursued rests entirely with the individual student, subject to considerations of proper preparation; but the group of studies to be taken must be that belonging to one of the regular years in the chosen curriculum exactly as announced in the catalogue, unless special reasons exist for deviating from this arrangement. A student will, however, be held to the requirements of the catalogue under which he entered.

CONDITIONS.—A student who is prepared to take up most of the studies of a certain year in the regular curriculum, but is deficient in some studies, will be permitted to proceed with the work of that year. Such a student is said to be *conditioned;* he is permitted to proceed subject to the *condition* that he make up the studies in which the deficiency occurs. This should be done, when possible, by study with a private tutor, and examination as soon as the work is completed; but it may be done by pursuing the studies in question with a lower class in the University, and the Committee on Classification has authority to require it to be done in that way when such procedure seems best. In

every case, provision for all of the lower studies must be made before any of the higher studies may be taken; and in the event of conflicts in the schedule, or excessive quantity of work, higher studies must give way to lower.

EXTRA STUDIES.—By special permission from the Dean of his college, a student may take extra studies in addition to those prescribed in his regular curriculum, provided that can be done without conflicting with a regular study or exceeding the maximum number of hours of study. Such permission is not, as a rule, granted to any conditioned student; and it may be withdrawn from any student in the event of failure in any of the regular studies.

SPECIAL STUDENTS.—Students who may desire to take special courses will be allowed, upon recommendation of the Committee on Classification, to take those classes for which they may be prepared. Such students are subject to all the laws and regulations of the University. These special courses do not lead to any regular degree.

The purpose of permitting students to take special courses, other than those regularly offered, is merely to provide for the occasional exceptional requirements of individual students; and any abuse of this privilege, for the sake of avoiding regular studies which may be distasteful, cannot be tolerated. Accordingly, no minor student is permitted to enter as a special student except upon written request of his parent or guardian.

CLASSIFICATION OF IRREGULAR STUDENTS.—A student is deemed to belong to that class in which the majority of his hours of work lies. But a special student is not considered as belonging to any of the regular classes.

CHANGES IN STUDIES.—After a student is once registered, he is not permitted to discontinue any class, or to begin any additional one, without written permission from the Dean of his college, which must be shown to the instructor involved. If the student has been registered for two weeks, he will not be permitted to make any change in his course without the payment of a fee of two dollars ($2.00).

GRADES AND REPORTS.—Each instructor keeps a record of the quality of work done by each student in his classes,

and assigns grades, on the scale of 100. At the end of each month the average grades for the month are reported to the office of the University for permanent record and for entry upon a monthly report to the parent or guardian of each student.

If the monthly grades show that any student is not doing satisfactory work, he may be required to drop some of his studies and substitute studies in a lower class, or he may be required to withdraw from the University.

EXAMINATIONS.—At the end of each semester regular examinations are held on all of the work of that semester.

FAILURE IN STUDIES.—A final grade for each semester's work is assigned, based upon the examination and the monthly grades. If this grade falls below 60 for any student, he is considered to have failed, and may proceed only subject to a condition in the study in which failure has occurred. The passing grades in this and the following paragraph do not apply to students in the College of Law.

RE-EXAMINATIONS.—A student who has failed in the work of a semester is allowed, in case his grade does not fall below 50, to make up the condition by re-examination, on the first Saturday of March or the first Saturday of October. To pass by re-examination, a grade of 70 must be attained. Only one re-examination in any subject is allowed to a student; in case of failure to pass, he must repeat the whole semester's work in the subject concerned.

ATHLETICS

GENERAL POLICY.—It is the policy of the University to foster clean, amateur athletics; not to tolerate professionalism in its athletics.

ABSENCES ON ACCOUNT OF ATHLETICS.—The members of regular athletic teams, together with necessary substitutes and manager, are permitted to be absent from University duties for such time as may be clearly necessary to take part in games away from Gainesville. All classwork missed on account of an athletic trip must be made up as promptly as possible after returning at such hours as may be arranged by the various professors.

SCHEDULE OF GAMES.—The schedule of games must be arranged so as to interfere as little as possible with University duties, and must receive the approval of the Committee on Athletics.

ELIGIBILITY TO ATHLETIC TEAMS.—Any team playing under the name of the University of Florida must be composed exclusively of genuine students in good standing in the University. A list of the players and substitutes for each game must be submitted to the Committee on Athletics before that game, and must receive its approval. Negligence of duties, or failure in studies, excludes a student from the right to play on a team representing the University.

No student is permitted to play on any of the regular teams, who, in the opinion of the University physician, is not in proper physical condition. No minor student is permitted to play if his parent or guardian objects to his doing so.

The University is now a member of the Southern Intercollegiate Athletic Association, and no student may become a member of a "Varsity" team until he has been declared eligible by the S. I. A. A. committee. All regular games will be scheduled with members of the Association or with colleges that have signed an agreement to play under Association rules.

HONORS

PHI KAPPA PHI.—A chapter of the Phi Kappa Phi Honor Fraternity was established at the University during the spring of 1912. This society has for its main aim the encouragement of learning and of high ideals. It is democratic in that it recognizes all branches of learning; it is aristocratic in that it confines its membership to those who have distinguished themselves in their college work. To be eligible for membership a student must have been in attendance at the University for at least three semesters, have been guilty of no serious breaches of discipline, and in addition have finished five-eighths of a course leading to a degree. A further restriction limits the number that can be elected to the first third of the Senior class of the Uni-

versity, and to the first sixth of the Junior class of each of the various colleges. The numerical grade which must be attained is based on all college work, whether done here or elsewhere, for which the student receives credit toward his degree. As a grade five per centum higher is required of Juniors than is demanded of Seniors, it is, of course, a much greater honor to gain election in the Junior year.

MEDALS.—Medals are offered in the University (1) for the best declaimer in the Freshman and Sophomore classes; (2) for the best original oration in the Junior class of any college; (3) for the best original oration in the Senior class of any college. These contests are all settled in public competition at Commencement. The speakers are limited to four from each class, selected by the Faculty.

Through the liberality of Mr. H. H. Buckman, of Jacksonville, Florida, a handsome medal is offered annually to the student of the College of Engineering making the highest average grade for the year.

STATEMENT OF EXPENSES

UNIVERSITY CHARGES.—*Tuition.*—No tuition is charged to a student whose home is in Florida, except in the College of Law, where a tuition charge of forty dollars ($40.00) will be made. Students who are non-residents of Florida will be required to pay a tuition fee of twenty dollars ($20.00) per year.

Registration Fee.—A registration fee of five dollars ($5.00) per year will be charged all students, except one scholarship student from each county in Florida. An additional fee of two dollars ($2.00) is required of students who enter after the day for registration scheduled in this catalogue.

Damage Deposit.—In order to secure the University property against damage, the sum of five dollars ($5.00) must be deposited at registration. Damage known to have been done by any student will be charged to his individual account; all other damages will be prorated among the students.

At the end of the scholastic year this deposit, less the

amount deducted, will be returned to the student. No orders for the disbursement of sums remaining to the credit of individual students will be accepted or recognized by the auditor until after the close of the second semester.

Infirmary Fee.—An infirmary fee of three dollars ($3.00) will be charged each student residing on the campus, the proceeds of which will go towards defraying the salary of a resident nurse. This will secure for the student, in case of illness, the privilege of a bed in the infirmary, which occupies Section A of Thomas Hall; the services of the nurse, and attention from the University physician, E. R. Flint, M.D. (Harvard). The payment of this fee does not increase the University charges made in former years, as a like amount is deducted from the cost of board and lodging for the first semester.

Board and Lodging.—Board and lodging will be furnished by the University at a cost of sixty dollars ($60.00) for the first semester, not including the Christmas vacation, and sixty-four and a half dollars ($64.50) for the second semester. These sums must be paid at the beginning of each semester. *Board and lodging will be furnished only by the semester and not by the month.* Under no circumstances, except on account of sickness, will any part of these charges be refunded because of absence for a period of less than one month; and in case a student is dismissed from the University, no part will be refunded. In very exceptional cases, arrangements may be made to pay as follows: Twenty dollars on each of the following dates: September 23, November 1, December 8, March 15, and April 15—and $24.50 on January 30. Under *Board and Lodging* are included meals in the dining-hall and room (with heat, light and access to a bathroom), furnished as stated below. The doors of the rooms are provided with Yale locks. A deposit of 25 cents is required for each key, which will be returned when the key is surrendered. The dining-hall will be closed during the Christmas holidays.

Room Without Board.—Students occupying a room in the dormitories, but not taking meals in the dining-hall, will be charged $20.00 per semester for lodging.

Furniture.—All rooms are partially furnished. The furniture consists of two iron bedsteads and mattresses, chiffonier or bureau, table, washstand and chairs. The students are required to provide all other articles, including pillows, bedding, wash-bowl, pitcher, mirror, half curtains, mosquito-bar, etc.

Uniform.—Students in the military department are required to provide themselves with the prescribed uniform, which is furnished under contract. The suit is of Charlottesville cadet gray, of good quality, and inexpensive. A cap of dark blue cloth and two pairs of white duck trousers are also required. This uniform is neat and serviceable and may be worn at all times. The total cost is about $17.00, which amount must be deposited on entrance.

Books.—The cost of books depends largely upon the course taken. The cost of required text-books is, in no case, a large item of expense, though in the higher classes the student is encouraged to acquire a few works of permanent value.

Summary.—The following statement summarizes the minimum expense of a Florida student registered in the College of Arts and Sciences, of Agriculture, or of Engineering, or in the Teachers' College:

Tuition	$000.00
Registration Fee	5.00
Damage Deposit	5.00
Infirmary Fee	3.00
Board and Lodging	124.50
Uniform (about)	17.00
Books (about)	10.00
Incidentals (laundry, athletic, literary society, etc., dues), about	20.00
	$184.50
Less Damage Deposit returned at end of year	5.00
	$179.50

The actual University charges to a law student (including board and lodging, fees, and tuition, but not including books) are $165.00.

Graduate and normal students, who are exempt from buying uniforms, will deduct the cost of uniform from the above table; and students from other States will add a tuition fee of $20.00.

REMITTANCES.—*All remittances should be made to the Auditor, The University of Florida, Gainesville, Fla.*

FELLOWSHIPS.—Three fellowships, to be known as Teaching Fellowships, are offered for students in the Teachers' College. These fellowships have been arranged to encourage young men teachers to prepare themselves further for their work by taking graduate courses in Education. Each fellowship pays two hundred dollars ($200.00) annually. They are given under the following conditions:

1. Application for a fellowship must be made in writing and addressed to the Dean of the Teachers' College or to the President of the University. It must show that the applicant is a college graduate and that he has ability to profit by the work offered. Testimonials of good character must accompany the application.

2. The holder of a fellowship will be expected to devote himself to the prosecution of studies that will lead to the master's degree in Education. He will be expected to teach four or five hours per week in the Practice High School under the direction and supervision of the Teachers' College. (He must devote much effort and time to this teaching, since it will count as two hours toward the degree.) He may be called upon for other minor services, such as conducting examinations and teaching review classes, but he shall not be called upon to do anything that would interfere with his regular graduate work.

SCHOLARSHIPS.—Through the generosity of friends of the University the institution is able to offer needy and deserving young men the following scholarships:

Two of $100.00 each per year:

1. *The Board of Control Scholarship.*—Established and maintained by the Board of Control. For Florida students.

2. *The Kirby Smith Scholarship.*—Established and maintained by the Kirby Smith Chapter of the Daughters

of the Confederacy. For grandsons of Confederate veterans.

Three of $124.50 each per year:

3. *The Children of the Confederacy Scholarship.*—For the lineal descendant of a Confederate soldier.

4 and 5. *The United Daughters of the Confederacy Scholarships.*—For lineal descendants of Confederate veterans.

Two of $200 per year:

6. *The High School Scholarship.*—For a graduate of any senior high school, preferably that of Escambia County.

7. *The G. S. & F. Railroad Scholarship.*—For a resident of any county through which this road passes. Recipient must enter the College of Agriculture.

Application for these scholarships should be made to the President of the University, and should be accompanied by a record of the student's work and statement of his need, and certificates of his character and desert. The scholarships will be awarded on the following principles:

(*a*) The student must actually need this financial help to enable him to attend the University.

(*b*) He must be worthy to receive such help. To be worthy he must first be a young man of good character and habits; second, he must be sufficiently far advanced to enter not lower than the Freshman Class of the University. This means that he must have completed the work of the twelfth grade of the public schools, or its equivalent.

OPPORTUNITIES FOR EARNING EXPENSES.—It is often possible for a student to earn a part of his expenses by working during such hours as are not required for his University duties.

The University gives regular employment to a few students as waiters in the dining-hall, as janitors, and in some other capacities. Such employment is not, as a rule, given to a student unless he is financially unable to complete a year at the University without earning money. In making appointments preference is given to students in attendance at the University, as compared with applicants from outside; to members of higher classes, as compared with those

of lower classes; and to students of high standing as compared with those of low standing. Employment is not given to a student who fails in any study.

While the employment of students is designed primarily to assist those in need of funds, the payment for their services is in no sense a charity. The rate of remuneration is no higher, and the standard of service demanded is no lower, than would be the case if the work were done by others than students. If a student employee fails to give satisfaction in his work, he is promptly discharged. Otherwise he is continued in his position as long as he cares to hold it, provided it is not found to interfere with reasonable success in his studies, and provided he does not commit any breach of general good conduct.

While great credit is due to those young men who are willing to make the sacrifices required to earn the expenses of their education, students are not advised to undertake to earn money while pursuing their studies, unless such a course of action is quite unavoidable. Proper attention to studies makes sufficient demand upon the time and energy of a student, without the burden of outside duties; and such time as the studies leave free can be spent more profitably in healthful recreation.

STUDENT ORGANIZATIONS

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.—There is a branch of the Y. M. C. A. in the University, which meets every Sunday. At these meetings the practical rather than the theoretical phases of Christianity are freely and candidly talked over, and the students discuss among themselves the special problems which arise in student life. Members of the Faculty, the ministers of the city, and distinguished Christian workers are frequently invited to address the association. Bible classes are organized in connection with the work.

Students, on entering the University, should by all means become identified with this organization, and parents should counsel and encourage them in so doing. A note of intro-

duction to the President of the organization will cause especial attention to be given a new student.

LITERARY SOCIETIES.—The *Literary Societies* are valuable adjuncts to the educational work of the University. They are conducted entirely by the students and maintain a high level of endeavor. The members obtain much practical experience in the conduct of public assemblies. They assimilate knowledge of parliamentary law, acquire ease and grace of delivery, learn to argue with calmness of thought and courtesy of manner, and are trained in thinking and in presenting their thought clearly and effectively when facing an audience.

All students are earnestly advised to connect themselves with one of these societies, and to take a constant and active part in its work.

THE TRANSIT CLUB.—This is an organization of the civil engineering students, having for its object the promotion of both social and intellectual interests of such men. It was founded in the spring of 1909 as a natural result of the fraternal feeling brought about by the close comradeship of camp life, and is the pioneer engineering society in this State. Fortnightly meetings are held in the civil engineering class rooms, and each member in turn presents a paper on some topic of interest to civil engineers.

THE PEABODY CLUB.—This is an organization of students in the Teachers' College and of others who are interested in teaching. It meets once each week, when all phases of modern educational problems are discussed in the form of reports, essays and debates. It attempts to acquaint, in a practical manner, the young teacher with the problems that will confront him in his regular school work, and especially to show him the advantages of teachers' meetings and conferences.

Students who contemplate teaching are urged to become members and take an active part in the work of this club.

THE AGRICULTURAL CLUB.—The purpose of the Agricultural Club is to promote interest in agriculture; to unify college thought; to afford training in public speaking; and to prepare for leadership in after life. The club meets

twice during the month. Its membership is composed of students in the College of Agriculture and others interested in the subject.

THE KELVIN ENGINEERING CLUB.—This is a society of electrical and mechanical engineering students. It meets every two weeks for the discussion of topics of general interest in electrical and mechanical engineering.

GLEE AND MANDOLIN CLUBS.—These organizations add greatly to the pleasures of University life. During the past year they have rendered the religious exercises at the morning assemblies much more attractive. The members have enjoyed the rehearsal evenings. Several week-end trips to places in the vicinity of Gainesville and a longer trip to Southern Florida have been taken. Under the capable direction of Mr. J. Oscar Miller and with the assistance of Dr. J. M. Chapman as "Reader," they have delighted large audiences wherever they have appeared. It is an advantage to every musically talented student to join one or the other of these clubs, both on account of the training he receives and of the pleasure he derives himself and gives others.

TERMS OF ADMISSION

A candidate for admission must present, along with his scholastic record, a certificate of good moral character; and if the candidate be from another college or university, the certificate must show that he was honorably discharged. No candidate under 16 years of age will be admitted.

METHODS OF ADMISSION*

There are two methods of gaining admission to the University:

(1) *By Certificate.*—The University will accept certificates from the approved senior high schools of Florida; from accredited academies and preparatory schools of the State; from any secondary school of another State which is accredited by its State University; and from any recognized college or university.

*For method of admission to the College of Law, see page 169.

The certificate presented by the candidate for admission must be officially signed by the principal of the school attended. It must state in detail the work of preparation, and, in the case of Florida high schools, that the course *through the twelfth grade* has been satisfactorily completed.

Blank certificates, conveniently arranged for the desired data, will be sent to all principals and, upon application, to prospective students.

(2) *By Examination.*—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held on the Thursday and Friday following the second Wednesday in June and on the Monday and Tuesday of the week in which the University opens.

SCHOLASTIC REQUIREMENTS

"Entrance Units."—The scholastic requirements for admission are measured in "Entrance Units." These units are based upon the curriculum of the high schools of Florida. A unit represents a course of study pursued throughout the school year with five recitation periods of at least forty-five minutes each per week, four courses being taken during each of the four years. Thus the curriculum of the standard senior high school of Florida is equivalent to sixteen units. Two laboratory periods should be counted as one recitation period.

It is thought that these requirements are at the very least fully equal to fourteen units as defined by the Carnegie Foundation or the National Educational Association.

NUMBER OF UNITS REQUIRED.—Admission to the Freshman class of the University will be granted to candidates who present properly certified credentials, showing that they have been graduated from a standard senior high school with a full four-year curriculum based upon an eight-year grammar school course, or who present satisfactory evidence of having completed courses amounting to sixteen units of preparatory work.

DISTRIBUTION OF UNITS.—Of the *sixteen* units required for admission, *ten* are specified and *six* are elective. Eight

of the specified units are required in common by all the colleges of the University while the remaining two vary.

UNIVERSITY REQUIREMENT

English	3 units
Mathematics	3 units
History	1 unit
Science	1 unit

COLLEGE OF ARTS AND SCIENCES

A. B. Curriculum

Latin	2 units

B. S. Curriculum

One Foreign Language or History and Science	2 units

COLLEGE OF AGRICULTURE

Agriculture	1 unit
History or Science	1 unit

COLLEGE OF ENGINEERING

Mathematics	1 unit
History or Science	1 unit

TEACHERS' COLLEGE

A. B. Curriculum

Latin	2 units

B. S. Curriculum

One Foreign Language or History and Science	2 units

ELECTIVE UNITS.—The *six* elective units may be chosen from the list of elective subjects given below and such other subjects as are regularly taught in a standard high school. It is provided, however, that not more than four of these units may be accepted in vocational subjects such as typewriting, stenography, mechanic arts, agriculture, etc.

LIST OF ELECTIVE SUBJECTS

Agriculture	1 unit
Botany	½ or 1 unit
Chemistry	1 unit
Engineering Practice	4 units
English	1 unit
Latin	4 units
History	2 units
Modern Languages — French, German, or Spanish	2 units
Physical Geography	1 unit
Physics	1 unit
Zoology	½ or 1 unit

Deficiencies.—A deficiency of two units will be allowed a candidate, but such deficiency must be removed by the end of the first year of admission.

DESCRIPTION OF UNIT COURSES

ENGLISH.—Four units.

The required work in English (including Grammar, Composition and Rhetoric and the recommended Classics) is designed to cover three years. It is urged that the exercises in Composition and the use of the Classics be continued through the three years.

(1) *Grammar.*—A thorough knowledge of English Grammar both in its technical aspects and in its bearings upon speech and writing.

(2) *Composition and Rhetoric.*—A mastery of the fundamental principles of elementary Rhetoric, such as is given in any standard high school text; and constant practice in Composition, oral and written, during the whole period of preparation.

(3) *Classics.*—The English Classics now generally adopted by school and colleges. There are two divisions of this work:

I. Reading.—A certain number of books will be set for reading (see list subjoined). The candidates will be required to present evidence of a general knowledge of the subject-matter and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics to be chosen by the candidate from a considerable number

—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books.

II. Study and Practice.—This part of the examination presupposes the thorough study of each of the works named in this division. The examination will be upon the subject-matter, form and structure. In addition the candidate may be required to answer questions involving the essentials of English Grammar and on the leading facts in English literary history to which the prescribed texts belong.

READING.—With a view to large freedom of choice, the books provided for reading are arranged in the following groups, from which at least ten units are to be selected, two from each group:

1. The Old Testament, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther. The Odyssey, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII. The Iliad, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI. Virgil's Æneid. The Odyssey, Iliad and Æneid should be read in English translations of recognized literary excellence.

For any unit of Group I a unit from any other group may be substituted.

II. Merchant of Venice. Midsummer Night's Dream. As You Like It. Twelfth Night. Henry the Fifth. Julius Cæsar.

III. Defoe: Robinson Crusoe, Part 1. Goldsmith: Vicar of Wakefield. Either Scott's Ivanhoe or Quentin Durward. Hawthorne: House of the Seven Gables. Either Dickens's David Copperfield or Tale of Two Cities. Thackeray: Henry Esmond. Mrs. Gaskell: Cranford. George Eliot: Silas Marner. Stevenson: Treasure Island.

IV. Bunyan: Pilgrim's Progress, Part 1. The Sir Roger de Coverley Papers in the *Spectator*. Franklin:

Autobiography (condensed). Irving: Sketch Book. Macaulay: Essays on Lord Clive and Warren Hastings. Thackeray: English Humorists. Selections from Lincoln, including at least the two Inaugurals, the Speeches in Independence Hall and at Gettysburg, the Last Public Address, and Letter to Horace Greeley, along with a brief memoir or estimate. Parkman: Oregon Trail. Either Thoreau's Walden or Huxley's Autobiography and selections from Lay Scrmons, including the addresses on Improving Natural Knowledge, A Liberal Education, and A Piece of Chalk. Stevenson: Inland Voyage and Travels with a Donkey.

V. Palgrave: Golden Treasury (First Series), Books II and III, with especial attention to Dryden, Collins, Gray, Cowper, and Burns. Gray's Elegy in a Country Churchyard and Goldsmith's Deserted Village. Coleridge's Ancient Mariner and Lowell's Vision of Sir Launfal. Scott: Lady of the Lake. Byron: Childe Harold, Canto IV, and The Prisoner of Chillon. Palgrave: Golden Treasury (First Series), Book IV, with especial attention to Wordsworth, Keats, and Shelley. Poe's Raven, Longfellow's Courtship of Miles Standish, and Whittier's Snow-Bound. Macaulay's Lays of Ancient Rome and Arnold's Sohrab and Rustum. Tennyson: Gareth and Lynette; Lancelot and Elaine; and The Passing of Arthur. Browning: Cavalier Tunes; The Lost Leader; How They Brought the Good News from Ghent to Aix; Home Thoughts from Abroad; Home Thoughts from the Sea; Incident of the French Camp; Hervé Riel; Pheidippides; My Last Duchess; Up at a Villa—Down in the City.

STUDY.—Shakespeare: Macbeth. Milton: L'Allegro; Il Penseroso; Comus. Either Burke's Speech on Conciliation with America or both Washington's Farewell Address and Webster's First Bunker Hill Oration. Either Macaulay's Life of Johnson or Carlyle's Essay on Burns.

(4) *History of American Literature; History of English Literature.*—The fourth year of the high school course in English usually covers the above subjects. This course will be accepted as an additional elective unit in English.

No candidate will be accepted in English whose work is

notably defective in point of spelling, punctuation, idiom or division into paragraphs.

MATHEMATICS.—Four units.

(1) *Algebra—First Year.*—One unit. A thorough knowledge of the elementary operations, factoring, highest common factor, least common multiple, fractions, simple equations, inequalities, involution, evolution, and numerical quadratics. This is supposed to represent the work of one year in the high school.

(2) *Algebra—Second Year.*—One unit*. This includes: A thorough study of quadratic equations, ratio and proportion, the progressions, imaginary quantities, the binomial theorem, logarithms, and graphic algebra. This is supposed to represent the work of the second year in algebra in the high school.

(3) *Geometry.*—One unit. The five books of Plane Geometry are required.

(4) *Solid Geometry.*—One-half unit.

(5) *Plane Trigonometry.*—One-half unit.

HISTORY.—Four units.

(1) Ancient History, with particular reference to Greece and Rome	1 unit
(2) European History since Charlemagne	1 unit
(3) English History	1 unit
(4) American History	1 unit

A year's work based on a good textbook of at least 300 or 400 pages is required in the case of each of the above divisions. The student should always know something of the author of the text-book which he uses and should also be able to give evidence of having consulted some works in addition to that used as a text.

LATIN.—Four units.

At least four years' work in this study is required to cover the four units. The minimum for each year is as follows:

(1) *First Year.*—One unit. A first year Latin book, such as Collar & Daniell's First Year Latin or Potter's Elementary Latin Course.

*This course represents only one-half unit on the Carnegie unit scale.

(2) *Second Year.*—One unit. Four books of Cæsar's Gallic War, with constant study of the grammar and constant practice in prose composition.

(3) *Third Year.*—One unit. Six of Cicero's Orations, with grammar and prose composition throughout the year.

(4) *Fourth Year.*—One unit. The first six books of the Æneid and as much prosody as relates to accent, versification in general and dactylic Hexameter.

MODERN LANGUAGES.—Two units. The two units in a modern language should be offered; if only one is offered, the student will be required to pursue the subject a second year in the University.

French.—The work should comprise: (1) careful drill in pronunciation; (2) the rudiments of grammar, including the inflection of the regular and the more common verbs, the plural nouns, the inflection of adjectives, participles, and pronouns; the use of personal pronouns, common adverbs, prepositions and conjunctions; the order of words in the sentence, and the elementary rules of syntax; (3) abundant easy exercises designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (4) the reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice of translating into French easy variations of the sentences read (the teacher giving the English) and in reproducing from memory sentences previously read; (5) writing French from dictation.

During the second year the work should comprise: (1) the reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches; (2) constant practice, as in the previous year, in translating into French easy variations upon the texts read; (3) frequent abstracts, sometimes oral and sometimes written, of portions of the text already read; (4) writing French from dictation; (5) continued drill upon the rudiments of grammar, with constant application in the construction of sentences; (6) mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb

forms, and of the simpler uses of the conditional and subjunctive.

German.—The work should comprise: (1) careful drill upon pronunciation; (2) the memorizing and frequent repetition of easy colloquial sentences; (3) drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of every-day life, of adjectives, pronouns, weak verbs, and the more usual strong verbs; also upon the use of the more common prepositions, the simpler uses of the modal auxiliaries, and the elementary rules of syntax and word-order; (4) abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (5) the reading of from 75 to 100 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading-lesson (the teacher giving the English), and in the reproduction from memory of sentences previously read.

During the second year the work should comprise: (1) the reading of from 150 to 200 pages of literature in the form of easy stories and plays; (2) accompanying practice, as before, in the translation into German of easy variations upon the matter read and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages; (3) continued drill upon the rudiments of the grammar, directed to the ends of enabling the pupil, first, to use his or her knowledge with facility in the formation of sentences, and, secondly, to state his or her knowledge correctly in the technical language of grammar.

Spanish.—The work should comprise: (1) careful drill in pronunciation; (2) the rudiments of grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives and pronouns, and the elementary rules of syntax; (3) exercises containing illustrations of the principles of grammar; (4) the reading and accurate rendering into good English of from 100 to 175 duodecimo pages of graduated texts, with

translation into Spanish of easy variations of the sentences read; (5) writing Spanish from dictation.

During the second year, the work should comprise: (1) the reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches; (2) constant practice in translating into Spanish easy variations upon the text read; (3) frequent abstracts of the texts read; (4) writing Spanish from dictation; (5) continued drill upon the rudiments of grammar.

AGRICULTURE.—One unit.

The preparation should include the study of Agriculture for Southern Schools, by Duggar, and The Nursery-Book, by Bailey, or their equivalents. At least one-third of the time should be devoted to laboratory practice, field work, and carefully planned visits to successfully and unsuccessfully conducted farms and fruit plantations.

PHYSICAL GEOGRAPHY.—One unit.

The preparation should include the study of at least one of the modern text-books, together with an approved laboratory and field course, and should cover the following subjects:

1. The earth as a globe; shape of the earth, how proved, size, how measured; motions, how determined; map making; different modes of projection.

2. The ocean; forms and divisions; depth, density, temperature; ocean movements, waves and currents; character of ocean floor; life in ocean; tides, character and causes; shore lines.

3. The atmosphere; chemical composition, and how determined; pressure of, and how determined; circulation of, character and cause; storms, classification of, and cause.

4. Land, amount and distribution of; topographic charts; plains, kinds of, and development of; plateaus, kinds of, and development of; volcanoes, distribution and character of; rivers, life-history of; glaciers, kinds and characteristics of.

BOTANY.—One-half or one unit.

The preparation should include a careful study of the following divisions of the subject: Anatomy and morphology; physiology; ecology; the natural history of the plant

groups, and classification. Individual laboratory work by the student is essential and should receive at least double the amount of time devoted to recitation.

ZOOLOGY.—One-half or one unit.

The candidates should be familiar with the subject of Zoology as given in a standard high school text, and, in addition to the theoretical work, at least ten specimens must be dissected, and note-books with drawings presented on entrance to the University, showing the character of the work completed.

PHYSICS.—One unit.

Preparation should include recitations on a standard high school text; and experimental work, consisting of lecture-table demonstrations and individual laboratory work. The latter should comprise at least thirty exercises selected from the list of a good laboratory manual.

CHEMISTRY.—One unit.

The preparation should include individual laboratory work, comprising at least thirty exercises selected from the list given in a recognized laboratory manual; instruction by lecture-table demonstrations, to be used mainly as a basis for questioning upon the general principles involved in the pupil's laboratory investigations; the study of a standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts and laws of elementary chemistry.

ADVANCED STANDING

Candidates who have been admitted to the University from other colleges or universities will be granted advanced standing only upon recommendation of the head of the department in which the standing is desired. The candidate's fitness for advanced work in the department may be determined by examination or trial. Students transferred from other colleges or universities of like standing will ordinarily be classified according to ground already covered.

SPECIAL STUDENTS

Students who may desire to take special courses will be allowed to do so by special arrangement. (See page 36.)

ORGANIZATION

In accordance with the recommendation of the National Association of State Universities, the University of Florida has been reorganized with a view to bringing its organization and nomenclature into harmony with that of other institutions engaged in similar work and in order to attain a better co-ordination among its various lines of activity. This change does not involve any material alteration in the work of the institution as it has been hitherto conducted; but gives a consistent nomenclature and a systematic division to the various fields. While it is recognized that the organization is somewhat extensive for the present, it is believed that it is wise to keep distinct the various features of the work with a view to future development.

The University organization is as follows:

I. The Graduate School.

II. The College of Arts and Sciences:
- (a) A Curriculum leading to the A.B. degree.
- (b) A Curriculum leading to the B.S. degree.

III. The College of Agriculture:
- A Curriculum leading to the degree of B.S. in Agriculture.

IV. The College of Engineering:
- (a) A Curriculum leading to the B.S. degree in Civil Engineering.
- (b) A Curriculum leading to the B.S. degree in Electrical Engineering.
- (c) A Curriculum leading to the B.S. degree in Mechanical Engineering.
- (d) A Curriculum leading to the B.S. degree in Mechanic Arts.

V. The College of Law:
- A Curriculum leading to the degree of LL.B.

VI. The Teachers' College:
- (a) A Curriculum leading to the A.B. degree in Education.
- (b) A Curriculum leading to the B.S. degree in Education.

VII. The Division of University Extension:
- (a) Farmers' Institutes.
- (b) Correspondence Courses in Agriculture.
- (c) Lecture and Literary Bureaus.

VIII. The Agricultural Experiment Station.

IX. State Nursery Stock Inspection.

GRADUATE SCHOOL

ORGANIZATION.—The work in this school is under the direction of the Committee on Graduate Studies. This committee consists of Professors Anderson, Vernon, Benton and Thackston.

DEGREES OFFERED.—The University is not in a position at present to lay any great stress upon the graduate work. Its work is mainly of a college grade and will doubtless remain so for a good many years to come. However, for the benefit of those who wish to carry their studies farther, the University does offer the degree of Master of Arts (M.A.), the degree of Master of Science (M.S.), and the degree of Master of Science in Agriculture (M.S.A.). Many of the departments of the colleges are prepared to give courses leading to these degrees.

PREREQUISITE DEGREES.—Candidates for the Master's degree must possess the corresponding Bachelor's degree of this Institution or an institution of like standing.

APPLICATIONS.—Candidates for the Master's degree must present to the Chairman of the Committee on Graduate Studies a written application for the degree not later than the first of November in the year in which the degree is desired. This application must name the major and minor subjects which are offered for the degree and must contain the signed approval of the heads of the departments concerned.

TIME REQUIRED.—The student must spend at least one full academic year in residence at the University of Florida as a graduate student, devoting his full time to the pursuit of these studies.

WORK REQUIRED.—The work is twelve hours per week. Six hours of this work must be in one subject (the major) and of a higher grade than any course offered for undergraduate students in that subject. The other six hours (the minor or minors) are to be determined and distributed by the professor in charge of the department in which the

major subject is selected. It is understood, however, that no course designed primarily for students of a lower grade than the Junior Class will be acceptable as a minor. It is also to be understood that while the major course is six hours, these hours are not the same as in undergraduate work. It means that the professor has the privilege of using these six hours for recitations or examinations, but the student will find that considerably more time is required to prepare one of these recitations than is the case in an undergraduate course. To obtain credit for a minor the student must attain a grade of not less than eighty per cent.

DISSERTATION.—It is customary to require a dissertation showing original research and independent thinking on some subject accepted by the professor under whom the major work is taken, but this requirement may be waived at the option of the professor, subject to the approval of the Committee on Graduate Studies. If the requirement be not waived, the dissertation must be in the hands of the committee not later than two weeks before Commencement day.

COLLEGE OF ARTS AND SCIENCES

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President.

JAS. N. ANDERSON, M.A., Ph.D.,
Dean of the College of Arts and Sciences.
Professor of Ancient Languages.

JAS. M. FARR, A.M., Ph.D.,
Professor of English Language and Literature.

EDWARD R. FLINT, Ph.D., M.D.,
Professor of Chemistry.

J. R. BENTON, A.B., Ph.D.,
Professor of Physics.

C. L. CROW, M.A., Ph.D.,
Professor of Modern Languages.

H. S. DAVIS, Ph.D.,
Professor of Geology, Zoology and Bacteriology.

H. G. KEPPEL, A.B., Ph.D.,
Professor of Mathematics and Astronomy.

MAJOR E. S. WALKER, U.S.A., Retired,
Professor of Military Science.

W. L. FLOYD, M.S.,
Professor of Horticulture.

HARVEY W. COX, A.M., Ph.D.,
Professor of Education and Philosophy.

L. L. BERNARD, A.B., Ph.D.,
Professor of History and Economics.

W. S. PERRY, A.B.,
Instructor in Physics.

GENERAL STATEMENT

AIM AND SCOPE.—The tendency of universities at the present time seems to be to reach out their arms farther and farther into the domain of knowledge and to become more and more places where one may expect to be able to acquire any form of useful knowledge in which he may be interested. In the center of such an institution, however, there is still found the College of Arts and Sciences, the pulsating heart, as it were, sending its vivifying streams to the outermost tips of the institution.

The aim of this college is to prepare for life, it is true, but not so directly and immediately as the professional schools. It is a longer, but a better road, for those who are able to travel it, to distinction and ultimate success in almost any calling. Especially in the case of the learned professions, it is becoming clearer that a man should first get a liberal education, if possible, before entering upon his professional studies.

The purpose and aim of the College of Arts and Sciences is to impart culture and refinement, to train the mind and strengthen the intellect, to build up ideals and establish the character, to enlarge the vision, to ennoble the thoughts, to increase the appreciation of the beautiful and the true, to add charm to life and piquancy to companionship, to make the man a decent fellow, a useful citizen, an influential member of society in whatever community he may be thrown, in whatever field his life-course may be run.

But if one wishes to examine the practical side exclusively, he will find that there is also something practical in all these courses. For instance, they are all valuable for the one who wishes to learn to teach those subjects. Moreover, the use of electives gives one an opportunity to specialize in some branch according to his inclination and in furtherance of his plans.

ADMISSION.—Sixteen entrance units are required for admission to the College of Arts and Sciences. For candidates for the Bachelor of Arts degree they are:

English	3 units
Mathematics	3 units
Latin	2 units
History	1 unit
Science	1 unit
Elective	6 units
	16 units

For candidates for the Bachelor of Science degree they are:

English	3 units
Mathematics	3 units
History	1 unit
Science	1 unit
A Foreign Language	2 units
Elective	6 units
	16 units

Instead of the two units in a foreign language an additional unit in History and an additional unit in Science may be offered.

For full description of terms of admission and unit courses, see page 46.

DEGREES.—The College of Arts and Sciences offers courses leading to the degrees of Bachelor of Arts (A.B.), and Bachelor of Science (B.S.).

SUBJECTS OF STUDY.—The subjects of study leading towards the degrees offered by the College of Arts and Sciences are divided into the following four groups:

I.	*II.*	*III.*	*IV.*
Military Science.	French,	Bible,	Agriculture,
	German,	Economics,	Astronomy,
	Greek,	Education,	Bacteriology,
	Italian,	English,	Botany,
	Latin,	History,	Chemistry,
	Rhetoric and English Language,	Philosophy,	Drawing,
		Political Science,	Descriptive Geometry,
	Spanish,	Sociology,	Geology,
	Etc.	Etc.	Mathematics,
			Mechanics,
			Physics,
			Physiology,
			Surveying,
			Zoology, Etc.

REQUIREMENTS FOR DEGREES.—For each of the degrees offered, A.B. and B.S., a total of sixty-two hours must be taken, of which two must be in Group I.

For the A.B. degree it is further provided that fifteen hours must be taken in each of Groups II and III and twelve hours from Group IV; three hours may be chosen from any group; and the remaining fifteen hours (including the "major") must be chosen from Groups II, III and (pure) Mathematics.

For the degrees of B.S. twelve hours must be taken from each of Groups II and III, twenty-four (including the "major") from Group IV, leaving twelve hours to be chosen from the subjects mentioned above.

CURRICULUM

Leading to the Degree of Bachelor of Arts.

Freshman Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
English I	Rhetoric	3	79
French I	Elementary Course		92
or			
German I	Elementary Course		92
or			
Spanish I	Elementary Course	3	93
or			
Greek I	Elementary Course		73
or			
Latin I	Livy, Ovid, Terence		72
History I	Modern European History	3	83
Mathematics I		3	89
Military Science I	Regulations	1	91
Elective		3	
		16	

Sophomore Year.

Group II		3	
Group III		3	
Group IV		3	
Military Science II		1	91
Group II or III or in both		6	
		16	

CURRICULUM

Leading to the Degree of Bachelor of Science.

Freshman Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
English I	Rhetoric	3	79
Botany I	General Botany	3	76
French I	Elementary Course		92
or			
German I	Elementary Course		92
or			
Spanish I	Elementary Course	3	93
or			
Greek I	Elementary Course		73
or			
Latin I			72
Mathematics I		3	89
Military Science I	Regulations	1	91
Elective		3	
		16	

Sophomore Year.

Group II		3	
Group III		3	
Group IV		9	
Military Science II		1	91
		16	

In the Junior and Senior years candidates for either of the degrees offered must choose their studies so as to conform to the general "Requirements for Degrees" of this college. The major referred to in these requirements must consist of nine hours in one department and must be approved by the head of the department chosen.

In all years the choice of electives must meet with the approval of the dean.

Requirements for Degrees for Students Admitted Before Session 1913-14.—The regulations printed above go into effect with the school year of 1913-14. Students who have previously been admitted to the College of Arts and Sciences will be held to the requirements for degrees in force when they entered. The work required follows:

CURRICULUM

Leading to the Degree of Bachelor of Arts.

Sophomore Year for Class Graduating in 1916

Names of Courses	Nature of Work	Hours Per Week
English II	Advanced College Rhetoric	3
French II or German II or Greek II	Intermediate Course Intermediate Course Xenophon, Lucian, Plato, Grammar, Composition	3
History II	The United States since 1783	3
Latin II	Cicero, Pliny, Horace	3
Mathematics II*a*	Plane Analytic Geometry, Higher Algebra	3
Military Science II	Field Regulations, Manual of Guard Duty	1
Physics I	General Physics	3
		19

Junior Year for Classes Graduating in 1915 and 1916

	Names of Courses	Nature of Work	Hours Per Week
	Chemistry I	General Inorganic Chemistry	3
*†I	Latin III and Greek III	Juvenal, Tacitus, Catullus, Tibullus, Ovid; Attic Orators, Homer, Composition, Grammar	
*II	French III or German III and Modern Language I	Advanced Course; Advanced Course; Elementary Course	
*III	English III and English V or English VII	Milton, Shakespeare; Anglo-Saxon Grammar and Reading; American Literature, Southern Literature	6
*IV	Philosophy I and Philosophy II	General Psychology; Logic and Ethics	
IV	History III and Economics I	French Revolution and 19th Century Europe; Principles of Economics	
*VI	Bible I and Bible II or Bible III (Greek VI)	Biblical History; The English Bible as Literature; Selections from the Septuagint and from the New Testament	
	Electives	To be chosen from Elective Groups below	9
			18

*At the beginning of the junior year the student will choose one of the six groups (I, II, III, IV, V, or VI), in which he will have six hours of work during his junior year and three hours during his senior year.

†A Modern Language may be substituted for either Latin III or Greek III in Group I.

Senior Year for Classes Graduating in 1914, 1915 and 1916

	Names of Courses	Nature of Work	Hours Per Week
*I	Latin IV or Greek IV	Plautus and Terence, Seneca, Tacitus, etc. Herodotus, Thucydides, Drama, Lyric	
*II	French IV or German V or Modern Language II	Old French. Old High German, Middle High German. Intermediate Course	
*III	English IV or English VI	The Novel, Romanticism. Chaucer and Middle English Grammar	
*IV	Philosophy III or Philosophy IV	Introduction to Problems of Philosophy. History of Philosophy	3
*V	Political Science I or Economics II	Government of the United States. To be selected	
*VI	Bible II or Bible III (Greek VI) or Bible IV	The English Bible as Literature. Selections from the Septuagint and from the New Testament. The Bible as an Ethical and Religious Guide	
Electives		To be chosen from Elective Groups	12
			15

*At the beginning of the junior year the student will choose one of the six groups (I, II, III, IV, V or VI), in which he will have six hours work during his junior year and three hours during his senior year.

CURRICULUM

Leading to the Degree of Bachelor of Science.

Sophomore Year for Class Graduating in 1916

Names of Courses	Nature of Work	Hours Per Week
Chemistry I	General Inorganic Chemistry	3
English II*A*	Advanced College Rhetoric	3
French II or German II	Intermediate Course / Intermediate Course	
Mathematics II*a*	Plane Analytic Geometry and Higher Algebra	3
Physics I	General Physics	3
Military Science II	Field Regulations, Manual of Guard Duty	1
Mathematics II*b* and Physics II or Zoology I and Chemistry II or History II and Chemistry II or Physics II	Differential and Integral Calculus 3; General Laboratory Physics 2; General Zoology 3; General Laboratory Chemistry 2; The United States since 1783 3; General Laboratory Chemistry 2; General Laboratory Physics 2	5
		21

Junior Year for Classes Graduating in 1915 and 1916

Names of Courses	Nature of Work	Hours Per Week
**Mathematical-Physical Group*:		
Mathematics III*a*	Differential and Integral Calculus, continued	3
Mathematics III*b*	Solid Analytic Geometry, Theory of Equations, Advanced Calculus, Differential Equations	2
A Second Modern Language		3
Electives		10
		18
**Chemical Group*:		
Chemistry III	Qualitative Analysis Laboratory	3
Chemistry IV	Qualitative Analysis Laboratory	2
Chemistry V*b*	Chemical Technology	3
Geology I and II	General Geology; Mineralogy	5
Electives	To be chosen from Elective Group	6
		19
**Natural History Group*:		
Bacteriology I and Geology I	General Bacteriology; General Geology	5
Zoology II	Histology and Physiology	5
Electives	To be chosen from Elective Group	8
		18
**Political Science Group*:		
History III	French Revolution and Nineteenth Century Europe	3
Economics I	Principles of Economics	3
French I or German I	Elementary Course; Elementary Course	5
Electives	To be chosen from Elective Group	9
		20

*At the beginning of the junior year the student will select one of the four groups offered and will take the required and elective hours of the group during his junior and senior years.

Senior Year for Classes Graduating in 1914, 1915 and 1916

Names of Courses	Nature of Work	Hours Per Week
**Mathematical-Physical Group*:		
Mathematics IV	Differential Geometry	3
Electives	To be chosen from Elective Group	12
		15
**Chemical Group*:		
Chemistry VII	Chemical Laboratory	7
Electives	To be chosen from Elective Group	8
		15
**Natural History Group*:		
Biology	To be chosen from Advanced Courses	5
Electives	To be chosen from Elective Group	10
		15
**Political Science Group*:		
Political Science I	Government of the United States	3
French II or German II	Intermediate Course	3
Electives	To be chosen from Elective Group	9
		15

*At the beginning of the junior year the student will select one of the four groups offered and will take the required elective hours of the group during his junior and senior years.

ELECTIVES

REGULATIONS.—Upon registration for the Junior year, each student shall submit his choice of electives to the Dean of the College.

In the A.B. Course at least nine hours of Junior and Senior electives must be taken from the two groups in which the major-subject does not fall. Of these nine hours, at least three must be taken each year.

In the B.S. Course, Juniors shall elect not more than two

subjects in the language and philosophical groups. Seniors shall elect not less than one subject in the philosophical group, and at least one in the science group.

No student shall elect more than the required number of electives without the approval of the Dean of the College.

In the Junior year A.B. Course, a modern language may be substituted for either Latin or Greek, with the approval of the Dean of the College.

ELECTIVE GROUPS.

I. Language Group.	*II. Philosophy Group.*	*III. Science Group.*
English,	Psychology,	Mathematics,
Latin,	Ethics,	Agriculture,
Greek,	Logic,	Astronomy,
French,	Bible IV,	Chemistry,
German,	History,	Physics,
Spanish,	Pedagogy,	Geology,
Italian.	Public Law,	Zoology,
	Sociology.	Botany,
	Economics.	Physiology,
		Bacteriology,
		Surveying,
		Mechanics,
		Drawing,
		Descriptive Geometry.

DEPARTMENTS OF INSTRUCTION

ANCIENT LANGUAGES

PROFESSOR ANDERSON

The study of the classics contributes largely to general culture. In addition to the recognized and peculiar disciplinary value of such studies, and their conspicuous service in cultivating the literary sense and developing literary taste, they have a more immediate value and office as aids to the comprehension and interpretation of modern languages and literature. A thorough study and a full understanding of the modern languages, especially the Romance Languages and our own tongue, demand a considerable preliminary acquaintance with Latin and Greek. Thus from two points of view, that of their own intrinsic beauty and value as culture studies, and that of subsidiary aids to the study of other and modern languages, Latin and Greek command our attention, and call for a large place in any curriculum which proposes to issue in a liberal education.

The following courses are offered for the coming year:

LATIN

LATIN I.—Ovid, about 2,000 verses selected from his various works, but mainly from the Metamorphoses; Versification, with especial reference to the Dactylic Hexameter and Pentameter; Livy, selections, amounting to about two books; Terence, Phormio. (*Elective for A.B. or B.S. students; both semesters;* 3 *hours.*)

LATIN II.—Selections from the Letters of Cicero and Pliny; selections from the Satires, Epistles, Odes, and Epodes of Horace, with a study of the Horatian Metres. (*Required of A.B. students,* 1913-14, *later elective; both semesters;* 3 *hours.*)

LATIN III.—Juvenal's Satires, with some omissions; Tacitus, parts of the Histories or Annals; Selections from Catullus, Tibullus, Propertius, and Ovid. (*Elective; both semesters;* 3 *hours.*)

LATIN IV.—Several plays of Plautus and Terence; Tacitus, Germania and Agricola; selections from Seneca, Gellius, and Quintilian. (*Elective; both semesters;* 3 *hours.*)

LATIN V*b*.—History of the Roman Literature, preceded by a short study of Roman Life and Customs. (*Elective; second semester;* 3 *hours.*)

LATIN VI.—Grammar and Prose Composition; an intermediate course in Prose Composition adapted to the needs of students taking Latin I or Latin II and consisting of weekly written exercises and some oral work; in connection with this there will be a general review of Latin Grammar with some more advanced work, both in forms and syntax. (*Elective; both semesters;* 2 *hours.*)

GREEK

GREEK I.—The forms and most important principles of the syntax will be learned from a beginner's book. The student will have numerous exercises, partly oral, partly written, and some practice in conversation and sight-reading. Then one book of Xenophon's Anabasis will be read with exercises in Prose Composition and study of the Grammar. (*Elective;* 3 *hours.*)

GREEK II.—Xenophon's Anabasis, Books II, III and IV; Selections from Lucian and the easier dialogues of Plato; sight translation; Prose Composition; Grammar. (*Elective;* 3 *hours.*)

GREEK III.—Select orations of Lysias or other Attic orators, with informal talks on Athenian laws and customs; parts of the Iliad and Odyssey of Homer; Prosody. (*Elective;* 3 *hours.*)

GREEK IV.—Selections from the Greek historians, especially Herodotus and Thucydides; selections from the Greek dramatists, especially Euripides and Sophocles; selections from the lyric fragments of Alcaeus, Sappho, etc. (*Elective;* 3 *hours.*)

GREEK V*a*.—A study of the history of Greek Literature preceded by a short study of Greek Life and Customs. A knowledge of the Greek language is highly desirable, but is

not required for this course. (*Elective; first semester;* 3 *hours.*)

GREEK VI.—Grammar and Prose Composition; an intermediate course in Prose Composition adapted to the needs of students taking Greek III or Greek IV and consisting of weekly written exercises and some oral work; in connection with this there will be a general review of Greek Grammar with some more advanced work, both in forms and syntax. (*Elective; both semesters;* 2 *hours.*)

GREEK VII.—Selections from the Septuagint and from the New Testament. (*Elective; both semesters;* 3 *hours.*)

BIBLICAL INSTRUCTION

PRESIDENT MURPHREE

The following courses are offered, embracing such aspects of Biblical study as the University is prepared to give, with a view to providing a major subject in the Bachelor of Arts curriculum, which will allow students who desire to begin preparation in the University for such work as Secretary or Physical Director of the Young Men's Christion Association, for welfare work in mills or social settlements, or for the ministry, to specialize in this direction. The courses offered will be conducted by the instructors in the departments under which the various aspects of the subject naturally fall and will be given in a spirit free from any narrow sectarianism.

BIBLE I*a*.—*Old Testament History.*—In the first semester the student will be made familiar with the history of the Israelitish nation as narrated in the historical books of the Old Testament; the connections between sacred and profane history will be discussed; and some conception of the development of the cultural life of the nation will be gained.

BIBLE I*b*.—*New Testament History.*—In the second semester, the student will use as a text primarily the New Testament itself, and a thorough knowledge of the story of the life of Christ and the development of the early church under the ministry of the Apostles will be the main end in view. A correlation of this with world history, and lec-

tures on wider reaches of the subject will be attempted. This course will be given by President Murphree. (*Elective for Juniors and Seniors; both semesters;* 3 *hours.*)

BIBLE II.—*The English Bible as Literature.*—In this course the various literary types found in the Bible will be studied and the excellence of the work as compared with other great examples of literature will be discussed. The diction of the 1611 version will be compared with that of earlier and more recent translations, and its effect upon English literature will be demonstrated. This course will be given by Professor Farr. (*Elective for Juniors or Seniors; both semesters;* 3 *hours.*)

BIBLE III (GREEK VII.)—*Old and New Testament Greek.*—Selections from the Septuagint and from the New Testament will be studied; class and parallel translations; the vocabulary, grammar, and stylistic features of the selections will be noted. This course will be given by Professor Anderson. (*Elective for Juniors and Seniors; both semesters;* 3 *hours.*)

BIBLE IV.—*The Bible as an ethical and religious guide.*—The time allotted to this course will be spent in the consideration of the Bible as a guide for human conduct. Those parts of both the Old and the New Testaments which bring out most vividly and directly the moral and religious elements will receive most attention. The course will aim to give to each student that appreciation of the Bible which all men should have. Lectures, Bible readings, studies of great sermons, and a text on Evidences of Christianity suggest in a general way how the course will be conducted. This course will be given by Professor Thackston. (*Elective for Juniors and Seniors; both semesters;* 3 *hours.*)

BOTANY

PROFESSOR FLOYD

The department is well equipped for carrying on the work. It has large, well-lighted laboratories, furnished with Caldwell laboratory tables, supplied with dissecting sets and simple and compound microscopes for each student. There is also physiological apparatus, stains, mount-

ing material, microtomes, paraffin baths, charts, and a small herbarium to which additions are made each year.

Plants for study can be easily obtained at all seasons of the year. The flora of the vicinity is rich in the number of important species and additional material may be secured from the horticultural grounds.

BOTANY I.—*General Botany.*—This embraces the study in the classroom and laboratory of the structure, morphology, evolution, and classification of plants. Work is done on special types, beginning with the simplest and advancing to the more complex. Field work is undertaken during the spring months. (*Both semesters; Freshman year;* 3 *hours.*)

BOTANY II*a.*—*Plant Physiology.*—The life processes of plants, such as how water is taken up and disposed of, relation to the soil, nutrition, respiration, irritability, etc., are directly investigated. Much of this is done in the laboratory and garden. (*First semester; Sophomore year;* 3 *hours.*)

BOTANY III*b.*—*Histology and Plant Anatomy.*—A study of the structure and development of the tissues of the higher plants in relation to their function. Practice is given in fixing, staining and mounting microscopic slides. (*Second semester; Sophomore year;* 3 *hours.*)

BOTANY IV*a.*—*Plant Pathology.*—A study of the nature and cause of plant diseases, especially those due to parasitic fungi. Laboratory and field work is done on forms of greatest economic importance in the State. (*First semester; Junior or Senior year;* 3 *hours.*)

BOTANY V*b.*—*Systematic Botany.*—A study of the morphology and classification of the seed plants. The phylogeny of the different families is given special attention. (*Second semester; Junior or Senior year;* 3 *hours.*)

BOTANY VI*b.*—*Plant Pathology* (*Advanced*).—Methods of culture and investigation of organisms causing plant diseases. This course is intended to prepare students for original investigation. (*Second semester; Senior year;* 3 *hours.*)

CHEMISTRY

PROFESSOR FLINT

The facilities for instruction in chemistry compare favorably with those of the larger institutions of the South and are being steadily improved. The department is equipped with the necessary apparatus and material for instruction in general inorganic and organic, analytical and industrial chemistry.

In all the science courses, students are required to take General Chemistry in the Sophomore year. Students in the A.B. courses may take it in the Junior year. The second year in chemistry is devoted mainly to qualitative, the third year to quantitative analysis. In the science courses, it is possible, on account of the electives offered to get four years of chemistry, specializing in analytical work in the fourth year. Abundant laboratory work is offered in all of the courses.

CHEMISTRY I.—*General Inorganic Chemistry.*—During the first semester, the non-metallic elements are studied by means of a text-book, lectures and recitations. Special attention is given to the principles underlying chemical union, and the theories and laws which govern the science.

In the second semester the metals and their more important compounds are studied in the same manner. (*Both semesters; 3 hours.*)

CHEMISTRY II.—*Laboratory Course in General Chemistry.*—In order to impress the principles of the science upon the minds of the students, they are required to repeat in the laboratory many of the experiments seen in the lecture-room, taking notes of the same, and writing the chemical reactions as far as possible. Each one is required to perform over a hundred experiments designed to illustrate chemical principles, including the preparation of many of the elements and their most important compounds.

In the second semester the laboratory work is designed to study the reactions of the metals with a view to their classification. During this semester a portion of the time is devoted to a thorough course in dry analysis. (*Two exercises a week throughout the Sophomore year, required*

of all students in the Chemical and Biological groups of the Scientific curriculum.)

CHEMISTRY III.—*Laboratory Course in Qualitative Analysis.*—(*Three exercises a week; Junior year; elective in the A.B. Course.*)

CHEMISTRY IV.—Includes Course III, with two additional exercises a week in the same line of work. (*Five exercises a week. Offered as an elective in the Science Course, and required in the Chemical Course.*)

CHEMISTRY V.—*Organic Chemistry.*—This course includes lectures, recitations and laboratory work. The laboratory work is designed to illustrate the various principles as given in the text, as well as practice in making pure organic preparations. (*Three hours a week; Junior year; required of students in the Chemical Course.*)

CHEMISTRY VI—*Chemical Technology.*—The course comprises a consideration of the chemical principles involved in the manufacture, refining and preparation of the leading products of commercial importance. "Thorp's Outlines of Industrial Chemistry" is used as a text, lectures being given occasionally enlarging upon or explaining the subject-matter of the book. Among the subjects studied are fuels, sulphuric acid, the soda industry, the chlorine industry, fertilizers, cements, glass, pigments, coal tar, mineral oils, soap, starch, sugar, fermentation industries, explosives, textile industries, paper, leather, etc. In connection with this visits will be made to such factories and chemical industries as may be accessible. (*Three hours a week throughout the Junior year; required of students in the Chemical Course.*)

CHEMISTRY VII—*Quantitative Analysis.*—(*Elective in the Senior year to students in the B.S. Courses; 3 hours a week.*)

CHEMISTRY VIII.—In this course five exercises a week are devoted to laboratory work. During the first semester this is given to Quantitative Analysis, the exercises being selected with a view to familiarizing the students with the leading quantitative operations involved in the gravimetric, volumetric and electrolytic methods in vogue. As far as

possible, the work of each individual is selected to aid especially in the line of work he may wish to pursue in the future, as medicine, pharmacy, analytical chemistry, etc. (*Seven hours a week; Senior year; required of students in the Chemical Course.*)

CHEMISTRY IX*a or b*.—A course of lectures in Agricultural Chemistry, embracing the chemistry of soils, the atmosphere, plant and animal growth and feeding, fertilizers, dairy products, insecticides, etc. (*Three hours a week for one semester in the Senior year; required of students in the Agricultural Course.*)

CHEMISTRY X*a or b*.—A course devoted to methods of teaching chemistry in the secondary schools, the selection and purchase of apparatus and the choice of text-books. (See Education XV.) (*One hour a week for one semester; required of students in the Normal Course.*)

ENGLISH LANGUAGE AND LITERATURE

PROFESSOR FARR

The work of this department is designed to meet the requirements for a practical and liberal education, and is regarded both as a necessary auxiliary to the training in technical courses, and as an important factor among the liberalizing studies. The three sides of the subject, Rhetoric, Linguistics, and Literature, are presented as fully as the time allotted will permit. While Rhetoric and Composition are especially stressed in the lower classes, literary studies in the higher, and linguistic work in electives, still the attempt is made to keep the three viewpoints before all classes as necessary to a mastery of their native language.

ENGLISH I.—*Advanced College Rhetoric.*—This course is designed to train the students in methods of clear and forceful expression. Throughout the year instruction is carried on simultaneously in formal rhetoric, in rhetorical analysis and in theme writing, the constant correlation of the three as methods of approach to the desired goal being kept in view. In addition a private reading course is assigned to the individual student. (*Throughout the year for all Freshmen; 3 hours.*)

ENGLISH II*a*.—*Development of English Prose.*—This course will follow the method of Minto's Manual in tracing historically the growth of the English prose literature, supplemented by collateral readings and by essays upon phases of the subject. (*First semester; Sophomore elective;* 3 *hours.*)

ENGLISH II*b*.—*Development of English Poetry.*—A continuation of the first semester's work in applying the method outlined to the study of English poetry. (*Second semester; Sophomore elective;* 3 *hours.*)

ENGLISH III*a*.—*Milton and the Epic.*—This course centers in a study of the Paradise Lost, around which are grouped studies in the Age of Milton and in the Epic as a type in Comparative Literature. The first four books of the poem are read in class. Written reviews on the remaining books alternate each week with essays from the student and lectures by the instructor on various phases of the subject. A reading course in the minor poets of the age and in the English translations of the great Epics is assigned to each student. (*Elective; first semester of Junior year;* 3 *hours.*)

ENGLISH III*b*.—*Shakespeare and the Drama.*—This course follows the above method. Three of the Shakesperian plays are read in class. On eight others a written review is held each fortnight and on the alternate week essays are written and lectures are given by the instructor. Readings in the English Drama from the Cycle plays to contemporary production are assigned to the student. (*Elective; second semester of Junior year;* 3 *hours.*)

ENGLISH IV*a*.—*American Poetry.*—This course will take a rapid survey of the development of poetry in the United States and will then center in a critical study of a few of the more important authors (Bryant, Whittier, Longfellow, Emerson, Lowell and Poe). (*Elective; first semester;* 3 *hours.*)

ENGLISH IV*b*.—*Southern Literature.*—A detailed study of the literature of the South with extensive reading and essay work, and an examination of the claims of Florida

authors, will be made. (*Elective; second semester;* 3 *hours.*)

ENGLISH V.—*The English Novel.*—In recognition of the fact that a large part of the reading of most Americans is in this line a course in the Novel is offered. This subject is studied in suitable texts from the two sides of chronological development and of technique; and the student reads a list of novels chosen to illustrate chronology and variety of species, analyzes minutely one novel from the technical side, masters the entire work and life of one novelist, and compares closely a novel and a dramatized version of it. It is hoped that the student may be so grounded in the classics and his taste and judgment so trained that his reading in this class of literature may not become mere intellectual dissipation. (*Elective; both semesters;* 3 *hours.*)

ENGLISH VI.—*The Romantic Revival.*—This course is planned as a study in literary movement. The causes and forces which underlie the movement, its phenomena and the authors and works which exhibit them, and a comparison with other movements in literature will be considered. The work of Prof. Beers will be used as a basis and the student will be led, by means of extensive reading, by investigation and essays and by lectures on the wider ranges of the subjects, to realize the truth of his statements. (*Elective; both semesters;* 3 *hours.*)

ENGLISH VII.—*Anglo-Saxon Grammar and Reading.*—The student is drilled in the forms of the early language and an elementary view of its relations to the other members of the Aryan family and its development into Modern English is given. The texts in Bright's Anglo-Saxon Reader are studied and Cook's edition of the Judith is read. (*Elective for Juniors; both semesters;* 3 *hours.*)

ENGLISH VIII.—*Chaucer and the Middle English Grammar.*—During the first semester the works of Chaucer are read in and out of class. The pronunciation, grammatical forms, scansion, condition of text, analogues and sources are closely examined. During the second semester, Morris and Skeats' Specimens, Part II, is studied in connection with informal lectures on Middle English viewed as developing

from Anglo-Saxon into Modern English. (*Elective for Seniors who have taken English VII; both semesters;* 3 *hours.*)

ENGLISH IX.—*Engineering Exposition.*—This course will attempt to give special training to the Engineering student in the preparation of the various kinds of writing which he will be called upon to do in the pursuit of his profession. It will consist largely of the writing of papers (upon subjects assigned by the departments in the College of Engineering), which will be criticized and revised. (*Engineering Seniors; both semesters;* 1 *hour.*)

GEOLOGY

PROFESSOR DAVIS

GEOLOGY I.—*General Geology.*—A short course in dynamical, structural and historical geology. (*Elective;* 3 *hours.*)

GEOLOGY II*b*.—*Mineralogy.*—Moses & Parson's Mineralogy. Class work on the general character of minerals, including the elements of crystallography. Laboratory determination of minerals. (*Elective; second semester;* 5 *hours.*)

GEOLOGY III.—*Historical Geology.*—Text and laboratory work.—The geological history and development of continental areas. The geological history and development of life. Chamberlin & Salisbury's Earth History is used as text for the course. (*Both semesters;* 5 *hours.*)

LABORATORY.—The department is provided with a well-lighted, comfortable laboratory, equipped for the courses offered. The United States Geological Survey Educational Series of rocks is accessible for the use of students of geology. For students of mineralogy there is provided a blowpipe collection of one hundred selected mineral species; an accessory blowpipe collection of miscellaneous minerals; a crystal collection of fifty natural crystals; and a reference collection of choice mineral specimens. Historical Geology students are provided with a collection of fossils illustrating the distribution and development of organisms.

NOTE:—Geology IIb and III will not be offered in 1913-1914.

HISTORY AND ECONOMICS

PROFESSOR BERNARD

This department attempts to introduce the student to the social sciences in the hope that he may receive an impulse toward an intelligent appreciation of the forces at work in the complex society of which he is a member, and that he may also be inspired toward, as well as in some measure equipped for, a wise discharge of his duties as a citizen. Courses in *History* find a place here for the reason that the present structure of our society can be understood only through a study of the past. Work in *Economics* is given not only because the struggle for existence and for the material means of satisfying wants has been in the past one of the dominant forces in social evolution, but also because that struggle presents to-day perhaps the most serious body of problems with which the citizen has to deal. *Political Science* is made a subject of study in order that the student may become acquainted with the nature and function of government as an agency of order and of social betterment. *Sociology*, while it is the latest of the social sciences to develop, is perhaps the most important, since to it belongs the double task of making a scientific survey and appraisal of a large field of facts in our society which have long been neglected or only cursorily examined, and of correlating the work of the other social sciences in such a way that problems of every-day life may have some light thrown upon them.

HISTORY

HISTORY I.—*European History.*—In this course the student is taken through a rapid introductory survey of the workings of the physical and mental factors in the development of civilizations from the founding of the ancient empires to the renaissance in Europe. This is followed by an analysis of the political, religious, economic, esthetic and other social factors at work in the awakening of Europe which led over into the political, religious and moral contest known as the Reformation. The gradual transformation of feudalism, the rise of industrial free cities, and the emerg-

ence of monarchical absolutism and national integration are traced in their relation to the establishment of trade routes, technical inventions, and geographical discovery. This is followed by a sketch of the beginning of modern science, democratic philosophies, and the transformation of absolutisms into democratic institutions. An attempt is made to give due consideration to geography, population, science and invention as historical forces. Robinson and Beard's Outlines of European History is used as the basis of the work. (*Both semesters; 3 hours.*)

HISTORY II.—*American History.*—A brief survey of colonial development is followed by a more elaborate study of the period of constitutional experiment, sectional contests, and the national adjustment which resulted in the era of good feeling. The development of New England factory industry, of Southern agriculture, and of Western transportation problems is next considered, especially with reference to their bearing upon national problems. The development of democratic institutions, the expansion of territory, the opening of the West, the war between the States, reconstruction, the tariff struggle, and the problem of corporations are other questions considered. (*Three hours.*)

HISTORY III*a*.—*The History of Democracy through the French Revolution.*—In this course democratic beginnings in discussion and institutions are traced down to the social and economic renaissance of the Eighteenth Century. A study is then made of the political, economic and social conditions of the Eighteenth Century civilization with reference to their bearing upon the revolution in thought and institutions which followed. The forces and movements of the American and French revolutions are examined, and the career of Napoleon is considered with reference to the disturbed conditions of his time. Readings, reports and lectures. (*Junior or Senior elective; first semester; 3 hours.*)

HISTORY III*b*.—*The History of Democracy Since 1815.*—The reassembling of the democratic forces after the Congress of Vienna is taken as the starting point. The series

of petty revolutions is studied with reference to the economic and political conditions of the various countries where they occurred. This is followed by the more detailed study of the emergence and development of definite economic, social, and political programs in different parts of the world from 1832 to the present. Readings, reports, and lectures. (*Junior or Senior elective; second semester;* 3 *hours.*)

HISTORY IV*a*.—*Industrial History of England.*—This course traces the development of English industry and commerce, and the attempt is made to correlate this development with that of the political and social life of the nation and the empire. (*Junior or Senior elective; first semester;* 3 *hours.*)

HISTORY IV*b*.—*Industrial History of the United States.*—This course attempts to survey the growth and diversification of industrial activities in the United States, and to point out some of their political and social consequences. (*Junior or Senior elective; second semester;* 3 *hours.*)

HISTORY V*a* or *b*.—*History and Civilization of the Orient.*—In this course some one of the modern oriental nations will be taken up and studied with reference to the development of its institutions, resources, technology, and mental life. An attempt will be made to show some of the relations of the country studied to the international problems of the future. The nation selected for study in 1913-1914 is China. (*Open to those who have had History I; either semester;* 1 *hour.*)

ECONOMICS

ECONOMICS I.—*Principles of Economics.*—This is an introductory course describing the leading characteristics of those human activities which are called economic, and presenting some of the general principles which underlie the value and price of goods as well as those which underlie the distribution of income into rent, wages, interest, and profits. Considerable time is devoted to the discussion of such practical economic problems as those that relate to money, taxa-

tion, international trade and the tariff, the labor movement, the trusts and transportation. Socialism and other plans of social reform also receive some consideration. The course is based on a text-book, but constant reference is also made to the works of various authors. (*Junior or Senior elective; both semesters;* 3 *hours.*)

ECONOMICS II.—On alternate years students who have completed Economics I will be permitted to elect two semester courses (*three hours' credit*) from the following subjects: International Trade and the Tariff, Money and Banking, Public Finance, Transportation, Conservation, History of Economic Theory. (*Both semesters;* 3 *hours.*)

ECONOMICS III*b*.—*Rural Economics.*—This course will consider especially such problems as the size of farms, agricultural methods, rental systems, rural labor problems, marketing of agricultural products, transportation, land taxation, capitalization of farm values, farm management, farm accounting, rural credit and co-operation. This course should be taken in connection with Sociology III*a*. (*Open to those who have had Economics I and others with sufficient preparation; second semester;* 3 *hours.*)

POLITICAL SCIENCE

POLITICAL SCIENCE I*a*.—*American Government and Politics—National.*—A historical introduction outlining the development of the constitution and of party machinery and practice is followed by a study of the evolution and modification of the dual theory and of the theory of separation of powers, the development of nationalism, the expansion of the judiciary, and the conservation movement. The organization and working of the governmental departments are also considered. (*Junior or Senior elective; first semester;* 3 *hours.*)

POLITICAL SCIENCE I*b*.—*American Government and Politics—State and Local.*—The development of State constitutions and the relation of State law and administration to national law and administration are first considered. Next the working of the various departments of State and

local government is considered, with special reference to the administrative side. Considerable attention is devoted to recent legislative and administrative methods being tried out in some of the States, such as municipal home rule, centralization of State administration, public service commissions, direct primaries, initiative and referendum, etc. (*Junior or Senior elective; second semester;* 3 *hours.*)

POLITICAL SCIENCE II*a*.—*Principles of Politics.*—The state, governments, constitutions, sovereignty, the distribution of governmental powers, citizenship, the electorate and subsidiary subjects. Garner's "Introduction to Political Science" will be used as a basis for the work. (*Junior or Senior elective; first semester;* 3 *hours.*)

POLITICAL SCIENCE II*b*.—*City Government and Administration.*—Organization of the city government, recent developments—the short ballot and commission government, taxation, budget making, accounting, control of public utilities, public works administration, municipal ownership, protection of persons and property, municipal home rule, charter making and powers, administrative efficiency, city planning, etc. (*Junior or Senior elective; second semester;* 3 *hours.*)

SOCIOLOGY

SOCIOLOGY I.—*Principles of Sociology.*—This is an introductory course designed to acquaint the student with some of the more fundamental facts and problems of society. The influence of natural forces, population, invention, custom, tradition and science upon social life and institutions; present social problems, such as the family, immigration, race conflicts, poverty, crime, social education, eugenics; the concrete forms and methods of association; the organization and control of social life. (*Junior or Senior elective; both semesters;* 3 *hours.*)

SOCIOLOGY II*a*.—*Modern Philanthropy.*—The principal topics discussed are the nature and causes of poverty and pauperism, the standard of living, remedial legislation and control, the almshouse, outdoor relief, unemployment, morbidity, dependent children, the insane, the feeble-minded,

the epileptic, the inebriate, cottage and congregate systems, colonies, history of poor relief, institutional administration, charity administration, public policy in charity. (*First semester; 3 hours.*)

SOCIOLOGY II*b*.—*Criminology*.—The nature and causes of crime, classification of criminals, the police and police methods, criminal procedure in the courts, prevention of crime, reformation and punishment of the criminal, penal systems, prison systems, penal labor, parole, indeterminate sentence, penal and rehabilitating colonies, are some of the topics considered. Special emphasis is placed upon prevention and reformation. (*Second semester; 3 hours.*)

SOCIOLOGY III*a*.—*Rural Sociology*.—This course is a study of the problems of rural life. It considers in particular the causes of the drift to the city, the rural school, the country church, rural amusement and cultural agencies, the influence of improved facilities for communication and transportation, rural health and hygiene. This course should be taken as supplementary to Economics III*b*. (*Open to those who have had Sociology I and to others with sufficient preparation; first semester; 3 hours.*)

SOCIOLOGY IV.—*Seminar*.—Graduate students and other students with sufficient preparation who wish to make intensive studies of specific social problems will be permitted to elect this course upon obtaining the consent of the instructor in charge. (*Both semesters; 3 hours.*)

SOCIOLOGY V*a* or *b*.—*Current Public Problems*.—In this course students who meet the requirements will be permitted from time to time to choose some public problem of general interest for study with the instructor. It is planned to have the course meet as far as possible the demands of intercollegiate debates, contests, etc., as well as those of general citizenship. (*Elective, subject to permission of instructor; either semester; 1 hour.*)

MATHEMATICS AND ASTRONOMY

PROFESSOR KEPPEL

MATHEMATICS

The work in the Department of Mathematics is planned with a threefold purpose in view:

1. For students who intend to *specialize* in Mathematics it provides the preparation for more advanced work. Several advanced courses are offered each year for this class of students.

2. To those who need Mathematics as an *instrument* it offers opportunities to become familiar with this instrument. The application of Calculus not only to Physics, Chemistry and Engineering, but even to such seemingly remote realms as Psychology and Political Economy, makes it advisable that this class should continue the study of Mathematics at least so far as to include Calculus.

3. To others it gives logical training in Analysis and Proof, introduces them to that scientific method par excellence of the Hypothesis, and develops the idea of a deductive system in its classical form. Elementary (Euclidean) Geometry is studied with this purpose in view by all members of the Freshman Class.

The following courses are offered each year:

MATHEMATICS A.—Solid Geometry. (*Both semesters; 2 hours.*)

MATHEMATICS B.—Plane and Spherical Trigonometry. (*Both semesters; 2 hours.*)

MATHEMATICS I.—Plane Analytic Geometry and College Algebra. (*Both semesters; 3 hours.*)

MATHEMATICS II.—Spherical Trigonometry and Elementary Calculus. (*Both semesters; 1 hour.*)

MATHEMATICS III.—Differential and Integral Calculus. (*Both semesters; 3 hours.*)

MATHEMATICS IV.—Solid Analytic Geometry and Calculus. (*Both semesters; 2 hours.*)

MATHEMATICS V.—Advanced Calculus and Differential Equations. (*Both semesters; 3 hours.*)

The following advanced courses, one of which is required of students in the Mathematical-Physical course, are offered for 1913-14:

ADVANCED CALCULUS WITH APPLICATIONS TO GEOMETRY. —The conditions of integrability, the successive extensions

to multiple and curvilinear integrals, integration in series and the trigonometric series will be discussed in the first part of the course; the application of Calculus to the Theory of Envelopes, Contact, Curvature and Torsion of twisted curves in the second part. (*Both semesters; 3 hours.*)

MATHEMATICAL SEMINARY.—Subject for the year: Higher Plane Curves. (*Both semesters; 3 hours.*)

ASTRONOMY

In connection with the Department of Mathematics a course in GENERAL ASTRONOMY will be offered, consisting of lectures and recitations, with practical exercises. No knowledge of advanced mathematics is presupposed. (*Elective; both semesters; 2 hours.*)

MILITARY SCIENCE AND TACTICS

MAJOR WALKER

In compliance with the Revised Statutes of the United States this institution maintains a course of instruction in Military Science and Tactics. The aim is to make familiar with the duties which first confront young officers, those who later, through emergency or inclination, find themselves in the military service. Experience has shown that military training not only promotes physical development and a tendency towards punctuality and system, but that it also fosters self-reliance and strengthens the principles of honor and fair dealing. The course is both practical and theoretical. The practical course consists of drills, target practice and other military exercises. The drills proper occupy time not to exceed 3 hours each week.

The course in military science is necessary for graduation. All students are required to take this course except graduates, law, teachers, short course in agriculture, adult specials, seniors and those physically disqualified. The physically disqualified will be required to submit a certificate to that effect from the resident physician and they will also, prior to graduation, be required to make up an equivalent amount of work in some other department.

Students will be given credit for previous military work at schools at which army officers are detailed as instructors.

Those who have served for three years in the National guard will be excused from military duty, provided, they pass a satisfactory examination in both the theoretical and practical courses.

The examination will be prescribed by the Professor of Military Science and Tactics.

The theoretical course, set forth below, consists of recitations supplemented by lectures on pertinent subjects:

MILITARY SCIENCE I.—(a) Infantry Drill Regulations; (b) Small Arms Firing Regulations. (*Required of Freshmen, 1 hour per week.*)

MILITARY SCIENCE II.—(a) Field Service Regulations; (b) Manual of Guard Duty. (*Required of Sophomores; 1 hour per week.*)

MILITARY SCIENCE III.—(a) First semester. The Service of Security and Information. Elementary Military Engineering. (b) Second semester. Army Regulations, Company Administration and similar subjects. (*Elective for Juniors and Seniors; 2 hours per week.*)

MODERN LANGUAGES

PROFESSOR CROW

French, German, Italian, and Spanish are the subjects taught in this department. Extensive courses of reading, in and out of class, frequent exercises, oral and written, and studies in the Literature and Languages of the respective countries form the chief features of instruction. Carefully prepared English abstracts of nearly all the parallel reading is required.

Authors and text-books vary from year to year. Though the classics are not neglected, special attention is paid to the literatures of the Nineteenth Century.

Since the session of 1906-07 tables have been set apart in the dining-hall for those wishing to speak German and Spanish.

All of the courses offered below will not be given in any one year.

FRENCH

FRENCH I.—*Elementary Course.*—Drill in pronunciation and important grammatical forms, elementary syntax, dictation, daily written exercises, memorizing of vocabularies and short poems, translation. (*Modern Language elective for Freshmen; elective; both semesters;* 3 *hours.*)

FRENCH II.—*Intermediate Course.*—Work of elementary course continued, advanced grammar, including syntax, prose composition, translation of intermediate and advanced texts, sight reading, parallel. (*Modern Language elective for Sophomores; elective; both semesters;* 3 *hours.*)

FRENCH III.—*Advanced Course.*—Syntax, stylistic, composition, history of French Literature, selections from the dramatists or novelists as class may decide. (*Elective; both semesters;* 3 *hours.*)

FRENCH IV.—*Old French.*—A course will be offered in Romance Philology open only to those who have taken French III, and Latin II. (*Elective; both semesters;* 3 *hours.*)

GERMAN

GERMAN I.—*Elementary Course.*—Drill in pronunciation and important grammatical forms, elementary syntax, dictation, daily written exercises, memorizing of vocabularies and short poems, translation. (*Modern Language elective for Freshmen; elective; both semesters;* 3 *hours.*)

GERMAN II.—*Intermediate Course.*—Work of elementary course continued, advanced grammar, including syntax, prose composition, translation of intermediate texts, sight reading, parallel. (*Modern Language elective for Sophomores; elective; both semesters;* 3 *hours.*)

GERMAN III.—A supplementary course in commercial German will be offered to students who are taking or have concluded German II. For the present this course will not count towards a degree. (*Elective; both semesters;* 2 *hours.*)

GERMAN IV.—*Advanced Course.*—Syntax, stylistic, composition, history of German Literature, selections from the dramatists or novelists. (*Elective; both semesters;* 3 *hours.*)

GERMAN V.—*Scientific Reading Course.*—A course in reading scientific German will be offered to students who have completed German II. The nature of the course will depend largely upon the needs of the students taking it. (*Elective; both semesters;* 3 *hours.*)

GERMAN VI.—Courses will be offered in Middle and Old High German open only to those who have taken German III. (*Elective; both semesters;* 3 *hours.*)

ITALIAN

ITALIAN I.—*Elementary.*—To students desiring to specialize in the Romance Languages, an elementary course in Italian is offered. As students who elect this course will already have some knowledge of formal grammar and of Latin and French, rapid progress will be made. (*Elective; both semesters;* 3 *hours.*)

SPANISH

SPANISH I.—*Elementary Course.*—Drill on pronunciation and important grammatical forms, elementary syntax, dictation, daily written exercises, memorizing of vocabularies and short poems, translation. (*Elective; both semesters;* 3 *hours.*)

SPANISH II.—*Intermediate Course.*—Work of elementary course continued, advanced grammar, including syntax, prose composition, translation, parallel. (*Elective; both semesters;* 3 *hours.*)

PHILOSOPHY

PROFESSOR COX

The primary aim of this department is to give the student a broad outlook upon life in general, as well as to give him a better understanding of his own life from psychological, ethical and metaphysical viewpoints. Philosophy lies

nearer to-day than ever before to the various sciences on the one hand, and to the demands of practical life on the other hand. Students desiring to take work in this department may begin with Course I*a*, Course II*a* or with Course III*a*. Juniors and Seniors may begin also with Course VII*a*.

Another very important aim of this department is to aid in the professional training of teachers. Proper laboratory equipment for carrying on mental and physical tests will be procured as rapidly as required for the prosecution of the work.

PHILOSOPHY I*a*.—*General Psychology*.—This course aims to acquaint the student with the facts and theories that are current in general psychological discussion. The study will begin with the sensations, the sense organs, and the functions of the brain; the course will then deal with the higher mental functions, such as attention, perception, memory, feeling, emotion, volition, the self, and like topics. (*First semester;* 3 *hours.*)

PHILOSOPHY I*b*.—*Experimental Psychology*.—This course will be mainly laboratory work. The student learns to work with the standard apparatus, and becomes somewhat familiar with the current prolems in Experimental Psychology. Special attention will be given to methods of psychological investigation, and the collection and treatment of data. (*Second semester;* 3 *hours.*)

PHILOSOPHY II*a*.—*Ethics*.—A general course in which emphasis will be laid upon the Principles of Ethics. This will involve the study of such topics as goodness, happiness, virtue, duty, freedom, civilization, and progress. Some time will also be given to the history of the various Ethical Systems. (*First semester;* 3 *hours.*)

PHILOSOPHY II*b*.—*Practical Ethics*.—A study of the moral problems of the individual and social life. (*Second semester;* 3 *hours.*)

PHILOSOPHY III*a*.—*Logic, Inductive and Deductive*.—This course will emphasive the practice in use of syllogisms,

inductive methods, logical analysis, and criticism of fallacies. (*First semester; 3 hours.*)

PHILOSOPHY III*b*.—*The Philosophical Poets.*—A study of the philosophical problems and their solution as given by the world's greatest poets. Such problems as Creation, Nature, Life, Freedom and Conduct will be given special attention. (*Second semester; 3 hours.*)

PHILOSOPHY IV*a*.—*Social Psychology.*—A study of the influences of the social environment upon the mental and moral development of the individual. (*Second semester; 3 hours.*)

PHILOSOPHY IV*b*.—*Abnormal Psychology.*—A study of the abnormal phases of mental life. Such topics as dreams, illusions, hallucinations, suggestion, hypnotism, hysteria, diseases of the memory, diseases of the will, and other mental diseases. Special attention will be given to mental hygiene. (*Second semester; 3 hours.*)

PHILOSOPHY V*a*.—*Genetic Psychology.*—A study of the course of development in the child from birth to adolescence. (*First semester; 3 hours.*)

PHILOSOPHY V*b*.—*Genetic Psychology.*—A study of animal intelligence. The purpose of this course is to give the student a better understanding of animal instincts and intelligence. (*Second semester; 3 hours.*)

PHILOSOPHY VI*a*.—*Philosophy of Conduct.*—A study of the problems of Conduct and Religion in the light of contemporary discussion. The aim of this course is to attack the problems of philosophy from the standpoint of the practical problems of every-day life. (*First semester; 3 hours.*)

PHILOSOPHY VI*b*.—*Philosophy of Nature.*—The aim of this course is to show Man's relation to Nature, and his place in Nature. It will take up the various philosophical doctrines, such as Animism, Pantheism, Materialism, Realism, Agnosticism, Humanism, Idealism, etc. (*Second semester; 3 hours.*)

PHILOSOPHY VII*a*.—*History of Ancient Philosophy.*—This course will trace the development of philosophic thought from its appearance among the Ionic Greeks to the

time of Descartes. Special attention will be given to the philosophy of Plato and Aristotle. (*First semester; 3 hours.*)

PHILOSOPHY VIII*a*.—*Advanced Psychology*.—A study of the theoretical and practical problems in the field of modern psychology. This course introduces the student to the theoretical problems that are attracting the attention of modern psychologists. It also emphasizes the practical aspects of psychology as it is applied to Business, Law, Medicine, Education, etc. (*First semester; 3 hours.*)

PHILOSOPHY VIII*b*.—*Advanced Psychology*.—Continuation of VIII*a*. (*Second semester; 3 hours.*)

PHYSICS

PROFESSOR BENTON
MR. PERRY

The work of this department is intended to meet the needs, on the one hand, of those who study physics as a part of a liberal education, and on the other hand, of those who will have to apply physics as one of the sciences fundamental to engineering.

Instruction is given by (1) recitations based upon lessons assigned in text-books; (2) laboratory work, in which the student uses his own direct observation to gain knowledge of the subject; (3) lectures, in which experimental demonstrations of the principles under discussion are given; and (4) seminar work in the advanced courses, in which the various members of the class take up different special problems requiring extended study or investigation, and report upon them in turn to the class.

The physical laboratory is well equipped for the experiments usually required in undergraduate laboratory work in the best colleges. The equipment has been greatly increased in the last few years, and additions are made to it from year to year.

The following courses are offered:

PHYSICS I.—General physics, including mechanics, heat, acoustics, and optics, but not electricity and magnetism. A

knowledge of plane trigonometry is pre-supposed. Text-book to be used in 1913-1914: Kimball's College Physics. (1 *lecture and* 2 *recitations per week.*)

PHYSICS II.—General laboratory physics, to accompany Physics I. A knowledge of plane trigonometry is presupposed. Text-book to be used in 1913-1914: Franklin, Crawford and McNutt's Practical Physics. (2 *exercises of* 2 *hours each per week.*)

PHYSICS III.—General electricity and magnetism, being a continuation of Physics I. Text-book to be used in 1913-1914: Franklin and McNutt's Elements of Electricity and Magnetism. (2 *recitations and* 1 *laboratory exercise of* 2 *hours per week.*)

PHYSICS IV.—A course on the teaching of physics, with special reference to high school physics. This course is designed for students in the Teachers' College, and will include methods of teaching physics, preparation of experiments, laboratory methods, and planning of laboratory facilities and equipment. It will be given if called for by three or more students, provided there is not too great coincident demand for other work in the department. (1 *hour per week.*)

ADVANCED COURSES IN PHYSICS.—Preparation has been made for offering advanced courses in physics, as electives for Juniors, Seniors and Graduate Students. Six such courses have been planned, as follows: Advanced Experimental Physics, General Mathematical Physics, Mechanics and Acoustics, Heat, Optics, Theoretical Electricity. Each of these courses is arranged to extend through two semesters and to require three hours per week of class room work, or equivalent time in the laboratory. Any one of these courses will be given when elected by three or more students.

ZOOLOGY AND BACTERIOLOGY

PROFESSOR DAVIS

ZOOLOGY

ZOOLOGY I.—*General Zoology.*—Typical examples illustrating the various groups of the animal kingdom are

studied, the object being to give the student a comprehensive idea of the structure, physiology, and activities of animals. (*Required of Sophomores in General Science, Agricultural and Pedagogical courses; elective; both semesters;* 3 *hours.*)

ZOOLOGY II.—*Histology and Physiology.*—A study of the microscopic structure and physiology of the principal tissues and organs of both vertebrates and invertebrates, special attention being paid to mammals. Thorough training is given in the more important methods of investigation. (*Elective; both semesters;* 3 *hours.*)

ZOOLOGY III*b.*—*Entomology.*—Careful attention is given to the structure of insects in general, after which the insect orders are considered, the student being expected to recognize the various orders and the more common families. Emphasis is given to the economic side of entomology. (*Required of Sophomores, Agricultural course; elective; second semester;* 3 *hours.*)

ZOOLOGY IV*a.*—*Vertebrate Morphology.*—Recitations and lectures on the comparative anatomy of vertebrates, accompanied by laboratory work on representatives of the principal groups. (*Elective; first semester;* 5 *hours.*)

ZOOLOGY V*b.*—*Vertebrate Embryology.*—Recitations and lectures on the development of vertebrates with special reference to the chick. Laboratory work on the development of the chick. (*Elective; second semester;* 5 *hours.*)

ZOOLOGY VI*b.*—*General Biological Problems.*—A course of lectures and collateral reading on such general biological problems as variation, adaptation, heredity and organic evolution. Special attention is paid to the results of recent experimental work. (*Elective, subject to the permission of the instructor; second semester;* 3 *hours.*)

ZOOLOGY VII*a.*—*Physiology and Hygiene.*—A course of lectures and recitations on general physiology, hygiene and sanitation. (*Elective; first semester;* 3 *hours.*)

BACTERIOLOGY

BACTERIOLOGY I*a.*—*General Bacteriology.*—This course is a general introduction to bacteriology and is designed to

afford the student a comprehensive knowledge of bacteria and their relation to every-day life. (*Prerequisite, Chemistry* I; *elective; first semester;* 3 *hours.*)

BACTERIOLOGY II*b*.—*Agricultural Bacteriology.*—In this course special attention is given to the bacteria of soil and dairy products with some consideration of the bacterial diseases of animals and plants. (*Elective; second semester;* 3 *hours.*)

BACTERIOLOGY III*b*.—*Advanced Bacteriology.*—This course consists principally of laboratory work with collateral reading along special lines adapted to the needs of the individual student. (*Elective; second semester;* 3 *hours.*)

NOTE: At present it will not be possible to give during the same year all the courses offered in this department. The courses given each year will be determined by the demand. No course will be given to less than three students.

COLLEGE OF AGRICULTURE

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

J. J. VERNON, B.Agr., M.S.A.,
Dean of the College of Agriculture and Professor of Agronomy.

W. L. FLOYD, M.S.,
Professor of Horticulture.

C. L. WILLOUGHBY, B.Agr.,
Professor of Animal Husbandry and Dairying.

----------*
Assistant Professor of Botany and Bacteriology.

----------*
Instructor in Soils and Fertilizers.

R. L. KING, B.S.A.,
Instructor in Agricultural Engineering and Assistant in Correspondence Courses.

JAS. M. FARR, A.M., Ph.D.,
Professor of English Language and Literature.

EDWARD R. FLINT, B.S., Ph.D., M.D.,
Professor of Chemistry.

JAS. N. ANDERSON, M.A., Ph.D.,
Professor of Ancient Languages.

C. L. CROW, M.A., Ph.D.,
Professor of Modern Languages.

LUTHER L. BERNARD, Ph.D.,
Professor of History and Economics.

H. S. DAVIS, Ph.D.,
Professor of Zoology and Entomology.

H. G. KEPPEL, A.B., Ph.D.,
Professor of Mathematics and Astronomy.

M. B. HADLEY, A.B.,
Instructor in Mathematics.

MAJOR E. S. WALKER, U.S.A., Retired,
Professor of Military Science.

*To be elected.

JOHN A. THACKSTON, Ph.D.,
Professor of Education and Inspector of High Schools.

HARVEY W. COX, A.M., Ph.D.,
Professor of Philosophy and Education.

MARY DACOSTA, *Secretary and Stenographer.*
A. G. COLCLOUGH, *Farm Foreman.*

SPECIAL LECTURER FOR 1913-14.
CHAS. F. DAWSON, M.D., D.V.S.,
Veterinarian, State Board of Health, Jacksonville, Fla.

GENERAL STATEMENT

The College of Agriculture is intended to meet the requirements of the Acts of Congress creating and endowing colleges in the different States. From these Acts it is apparent that recognition of agriculture as a branch of collegiate instruction is a distinctive feature of the institutions founded upon the provisions of the national land-grant act. The aim of the college is to offer young men the best possible equipment for their chosen field of endeavor. The courses comprise both theory and practice, and afford opportunity for gaining both technical knowledge and training in the art of agriculture. Since about one-third of the student's time is devoted to agricultural branches and the other two-thirds to the sciences and cultural studies, a broad, thorough foundation is laid which will enable him, upon graduation, to become either a leader in educational lines or an effective producing agriculturist.

The group courses offered during the Sophomore, Junior and Senior years afford opportunity for selecting that phase of agriculture best suited to the qualifications and taste of the individual, and for preparing for that particular line of work. Those who wish to pursue general farming will elect the agronomy or animal husbandry group. Those interested in fruit production or market gardening will elect the horticultural group. The chemical group will interest those who wish to become expert agricultural analysts. There is already a demand for teachers competent to give instruction in agriculture, and in the years to come this demand

will no doubt grow in Florida as it has grown in other agricultural States. In order to meet this need a special course has been prepared in agriculture for teachers. The present demand for experienced agricultural teachers cannot be supplied; therefore agriculture forms an attractive and lucrative subject for ambitious young men who contemplate teaching.

In addition to the four-year course in agriculture, the following courses are offered:

1. A Middle Course of Two Years.
2. A One-Year Course.
3. Two Four-Month Short Courses.
4. A Four-Week Short Course for Farmers.
5. A One-Week Short Course for Corn Club Boys.
6. Fourteen Correspondence Courses for Home Study.

EQUIPMENT.—*Agricultural Hall.*—The headquarters of the College of Agriculture were moved from Thomas Hall into the new Agricultural Hall at the beginning of the school year 1912-13. The new building, for the erection of which the Legislature of 1911 generously appropriated funds, not only relieves previous crowded conditions, but also makes it feasible to carry out certain lines of instruction in a manner heretofore impossible.

The classrooms and laboratories in the new building were specially planned to meet the needs of the instruction to be given, and some much needed apparatus has been added that will materially strengthen the work of the college.

Offices, Classrooms and Laboratories.—Agricultural Hall provides space for department offices; for class rooms in Agronomy, Animal Husbandry and Agricultural Engineering; for laboratories in soils and fertilizers, crop and grain judging, farm machinery, farm power, dairying, stock judging, etc.

The Agronomy Department occupies four rooms—a large, well-lighted, well equipped soil laboratory, with an adjoining storage and work room, and a large crop judging laboratory, with an adjoining mouse-proof storage room for seed and forage crops.

The soil laboratory equipment comprises microscopes, sampling augers, tubes and carriers; balances, ovens, soil thermometers, packers, cylinders, and tubes; moisture absorption box with trays; percolation, capillary and evaporation apparatus; sieves, shaker, etc. The equipment is of the best type and fully adequate for giving thorough courses in soils. There are three large stone-top desks with individual lockers. The storage room is provided with soil bins, packer, cases, and shelving in abundance.

The field crop laboratory is provided with five long judging tables and the storage room for seed and forage is lined with suitable shelving.

The Agricultural Engineering work, which for the present is connected with the Agronomy Department, occupies two specially equipped laboratories—the one for farm motors and iron work, the other for farm machinery and wood work.

These laboratories are equipped with a large collection of machinery lent for instruction purposes to the college by manufacturers, and consisting of gasoline engines, windmills, feed grinders, stalk cutter, walking and riding plows, various types of harrows, walking and riding cultivators, seeders, one and two-horse corn planters, manure spreader, etc. Besides these the farm laboratory has a fairly complete equipment of modern labor-saving machinery so that actual operations may be observed by the students. Special stress is placed upon this because labor-saving machinery has not yet come into general use upon Florida farms.

Donations and Loans.—The laboratories have been supplied with engines, windmills, and modern labor-saving farm machinery for the purpose of instruction through the generosity of the following manufacturers:

The John Deere Plow Company, Atlanta, Ga.

International Harvester Company, Chicago, Ill., and Jacksonville, Fla.

Stover Manufacturing Company, Freeport, Ill.

Perkins Windmill Company, Mishawaka, Ind.

Through an agreement to carry out a demonstration test on the College farm, the J. I. Case Plow Works, Racine,

Wis., has provided the Farm Laboratory with a complete equipment of up-to-date crop growing machinery.

The Animal Husbandry Department is provided with a large live stock judging auditorium arranged with tiered seats, and a stand for animals.

The Dairy work, which for the present is connected with the Animal Husbandry Department, occupies four rooms —a large general laboratory for the operation of farm dairy machinery, a milk testing laboratory, a dairy bacteriological laboratory, and a wash room.

The laboratories and judging quarters are fitted with modern furniture and apparatus for a comprehensive study of both the theoretical and practical sides of the work.

The Horticultural Department for the present occupies quarters in Science Hall.

Many studies are taken in common with students from other colleges of the University.

The College Farm.—The farm connected with the College of Agriculture, used for instruction purposes and for growing crops with which to feed the instruction herds, consists of 120 acres (80 acres recently purchased), about 20 acres for trucking, 80 acres for pasture and general field crops, 10 acres for orchard, 7 acres for soiling purposes and stock lots, and 3 acres for buildings and grounds, where a hay and machinery barn now stands and where it is contemplated building, as soon as money is available, a horse barn, a sanitary dairy barn, a fertilizer house, additional poultry houses and runs, a packing shed, corn cribs and a farm foreman's cottage.

Live Stock.—The laboratory equipment in live stock is only well begun, but the individuals of the herds are of high grade. There is such great promise of the live stock and dairy industry in Florida that in future much attention will be given to the subject. The equipment will be added to from year to year, as funds become available for that purpose, until representatives of all the important breeds and classes will be available for giving thorough courses in breeds of live-stock and judging and score-card work, so helpful in mastering the details connected with stock-rais-

ing. A poultry plant has been started which will be used for instruction purposes.

Library.—The Agricultural Library is small but select. The leading technical books and a fairly complete set of State Experiment Station and Government Bulletins are placed within easy reach of the students. The list is being added to each year. The general library is also open to the students of the College.

SCHOLARSHIPS.—The following scholarships in agriculture were available during 1912-13:

Georgia Southern and Florida Railway Company, $200.

Taylor County, three scholarships of $25.00 each, covering the Farmers' Short Course, available for members of the Boys' Corn Clubs.

THE AGRICULTURAL CLUB, inaugurated in 1909, has already proved an important factor in student life. The objects of the club are manifold. The following are among the most important:

First, to promote interest in and enthusiasm for agriculture.

Second, through social intercourse, to unite in closer bonds of friendship and sympathy those who desire to have a part in the promotion of this great industry.

Third, to gain knowledge. Looking to this end the club will be addressed from time to time by practical and scientific agriculturists. Carefully prepared papers, essays, readings and orations will be presented by the members upon assigned or chosen subjects of general interest to the club. General discussions on current agricultural and humanitarian topics will be freely encouraged.

Fourth, training in presenting agricultural matter. At the present time such training is almost as important a factor in success as agricultural knowledge. Practice is obtained in parliamentary usage and in presiding over and conducting public societies. Members in turn are given a place on the program and they are encouraged to take part in the discussions and business that may come before the club.

Every student of the College of Agriculture should avail himself of the benefits and privileges offered by the club, and students of other colleges in the University are cordially invited to make use of the means thus provided for increasing their knowledge of and sympathy with this important movement, the uplift of the agricultural industry—an industry which not only supplies mankind with food, but upon which nearly all other industries depend.

New students in the University interested in agriculture should make themselves known to the officers of the Agricultural Club, and should join the same at once, thereby securing the many benefits to be derived from membership.

FOUR-YEAR COURSE

Entrance Requirements.—The entrance requirements for admission to the four-year course of the College of Agriculture are:

English	3 units
Mathematics	3 units
History	2 or 1 unit
Science	1 or 2 units
Agriculture	1 unit
Electives	6 units
	16 units

For a detailed description of the entrance units, see page 46.

While one unit of agriculture is required, owing to the fact that agriculture has been so recently included in the curriculum of the public high schools by legislative enactment, candidates will be allowed to take the agricultural work in which they are deficient during the Freshman year. Those who enter the preparatory year will pursue the required agricultural work in class.

Degrees.—The regular four-year course culminating in one of the five groups—Agronomy, Horticulture, Animal husbandry, Agricultural-Chemical, or Agricultural-Normal —leads to the degree of Bachelor of Science in Agriculture. One year additional work as prescribed for graduate stu-

dents leads to the degree of Master of Science in Agriculture.

Credits for Practical Work.—Agricultural students who, by previous agreement with the head of a department and the Dean, do practical work, during their course of study, on farms, in groves, nurseries, dairies, or breeding establishments; in syrup, sugar, or canning factories; or in other recognized agricultural lines, and who render competent and faithful service, will, on their return to College and on the presentation of a concise written report or résumé of their observations and experience, be entitled to one semester hour credit for each month of such work. Such credit shall not total more than six semester hours in the two-year and four-year courses in agriculture.

Students must have at least three months of practical work before graduation, but credit will be given for such work only as stated above.

Remunerative and Instructive Labor.—Students in the Agricultural Courses are afforded opportunity to do considerable work in the fields and truck gardens, about the barns, and in the buildings. Some careful and industrious students secure work in the Agricultural Experiment Station of the University. The compensation for services of this nature usually ranges from eight to twenty cents per hour, according to the experience of the student and the nature of the work performed. By this means several students are enabled not only to earn part of their expenses but also to strengthen their education by the practical knowledge thus gained. Students who find employment during vacation periods on farms and in other positions allied to agriculture will be markedly benefited and will be able to command more desirable and remunerative positions after graduation or find their efforts on the farm more effective. Emphasis should be placed upon a thorough understanding of the practical application of scientific principles.

Laboratory Work.—Two hours of laboratory work are reckoned as one hour credit in estimating the total number of hours in the following courses.

CURRICULUM

Leading to the Degree of Bachelor of Science in Agriculture.

Freshman Year.

FOR ALL GROUPS.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Agronomy I*a*	Soil Physics	2	117
Horticulture I	Plant Propogation	2	120
Animal Husbandry I	Types and Classes of Horses, Mules and Swine	2	122
Agricultural Engineering I	Farm Machinery	2	118
Botany I*a*	General Botany	3	76
English I*a*	Rhetoric, Composition	3	79
Mathematics I*a*	Plane Trigonometry	2	89
Agricultural Seminar		1	119
Library Work		R	
Military Science I*a*	Drill Regulations	1	91
		18	
(Second Semester.)			
Agronomy I*b*	Soil Physics	2	117
Horticulture II	Greenhouse Management	2	120
Animal Husbandry II	Types and Classes of Cattle, Sheep and Goats	2	122
Agricultural Engineering II	Farm Motors	2	76
Botany I*b*	General Botany	3	76
English I*b*	Rhetoric, Composition	3	79
Mathematics 1*b*	Plane Trigonometry	2	89
Agricultural Seminar		1	119
Library Work		R	
Military Science I*b*	Firing Regulations	1	91
		18	

NOTE.—A total of eight actual hours of Library Work required.

AGRONOMY GROUP

Sophomore Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Horticulture III*a*	Trucking	2	120
Chemistry I-II*a*	General Inorganic Chemistry	5	77
Botany II	Plant Physiology	3	76
Zoology I*a*	General Zoology	3	97
Military Science II*a*	Field Regulations	1	91
Elective		2	
		16	
(Second Semester.)			
Agronomy II	Fertilizers	3	117
Horticulture III*b*	Trucking	2	120
Chemistry I-II*b*	General Inorganic Chemistry	5	77
Zoology III	Entomology	3	98
Military Science II*b*	Manual of Guard Duty	1	91
Elective		2	
		16	

Junior Year.

(First Semester.)			
Agronomy III	Field Crops	3	117
Chemistry III*a*	Qualitative Analysis	3	78
Botany IV	Plant Pathology	3	76
Bacteriology I*a*	General Bacteriology	3	98
Elective		4	
		16	
(Second Semester.)			
Agronomy IV	Forage Crops and Grasses	2	118
Agronomy V	Rural Law and Farm Accounts	3	118
Chemistry VI*b*	Quantitative Analysis	3	78
Agricultural Bacteriology II	Soil and Dairy Bacteriology	3	99
Elective		5	
		16	

Senior Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Agricultural Engineering III	Buildings, Roads, Irrigation and Drainage	3	119
Agricultural Chemistry VIII	Chemistry of Soils, Fertilizers, etc.	3	78
Economics III	Rural Economics	3	86
or			
Economics I*a*	Principles of Economics		85
Elective		7	
		16	
(Second Semester.)			
Agronomy VI	Farm Management	2	118
Horticulture X	Landscape Gardening	2	121
Sociology III	Rural Sociology	3	88
or			
Economics 1*b*	Principles of Economics		85
Agricultural Education I	Extension Teaching	2	119
Elective		7	
		16	

Note.—The elective hours may, with the approval of the Dean, be chosen from the other groups or from other colleges.

HORTICULTURAL GROUP

Sophomore Year.

(First Semester.)			
Horticulture III*a*	Trucking	2	120
Chemistry I-II*a*	General Inorganic Chemistry	5	77
Botany II	Plant Physiology	3	76
Zoology I*a*	General Zoology	3	97
Military Science II*a*	Field Regulations	1	91
Elective		2	
		16	
(Second Semester.)			
Agronomy II	Fertilizers	3	117
Horticulture III*b*	Trucking	2	120
Chemistry I-II*b*	General Inorganic Chemistry	5	77
Zoology III	Entomology	3	98
Military Science II*b*	Manual of Guard Duty	1	91
Elective		2	
		16	

Junior Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Horticulture IV	Citrus Culture	3	121
Horticulture VII	Deciduous Fruits	3	121
Botany IV	Plant Pathology	3	76
Bacteriology I	General Bacteriology	3	98
Elective		4	
		16	
(Second Semester.)			
Horticulture V	Citrus Harvesting and Marketing	2	121
Agronomy V	Rural Law and Farm Accounts	3	118
Horticulture VIII	Plant Breeding	3	121
Agricultural Bacteriology II	Soil and Dairy Bacteriology	3	99
Elective		5	
		16	

Senior Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Agricultural Engineering III	Building Roads, Irrigation and Drainage	3	119
Agricultural Chemistry VIII	Chemistry of Soils, Fertilizers, etc.	3	78
Economics III	Rural Economics	3	86
or			
Economics I*a*	Principles of Economics		85
Horticulture VI	Insects and Diseases of Citrus Fruits	3	121
or			
Horticulture IX	Forestry		121
Elective		4	
		16	
(Second Semester.)			
Agronomy VI	Farm Management	2	118
Horticulture X	Landscape Gardening	2	121
Sociology III	Rural Sociology	3	88
or			
Economics I*b*	Principles of Economics		85
Agricultural Education I	Extension Teaching	2	119
Elective		7	
		16	

ANIMAL HUSBANDRY GROUP

Sophomore Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Dairying I	Dairy Testing	2	125
Animal Husbandry III	Breeds of Live Stock	3	122
or			
Botany II	Plant Physiology		76
Zoology I*a*	General Zoology	3	97
Chemistry I-II*a*	General Inorganic Chemistry	5	77
Military Science II*a*	Field Regulations	1	91
Elective		2	
		16	
(Second Semester.)			
Dairying II	Farm Buttermaking	2	125
Animal Husbandry IV	Poultry Culture	3	123
or			
Agronomy II	Fertilizers		117
Zoology I*b*	General Zoology	3	97
Chemistry I-II*b*	General Inorganic Chemistry	5	77
Military Science II*b*	Guard Duty	2	91
Elective		2	
		16	

Junior Year.

(First Semester.)			
Animal Husbandry V	Animal Feeding	3	123
Animal Husbandry VII	Beef Production	2	123
Agronomy III	Field Crops	3	117
Bacteriology I	General Bacteriology	3	98
Elective		5	
		16	
(Second Semester.)			
Animal Husbandry VI	Animal Breeding	3	123
Animal Husbandry VIII	Dairy Farming	2	123
Agronomy IV	Forage Crops and Grasses	2	118
Bacteriology II	Soil and Dairy Bacteriology	3	99
Elective		6	
		16	

Senior Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Animal Husbandry IX	Pork Production	2	124
Animal Husbandry X	Animal Hygiene	3	124
Agricultural Engineering III	Buildings, Roads, Drainage and Irrigation	3	119
Economics III or Economics I*a*	Rural Economics / Principles of Economics	3	86 / 85
Elective		5	
		16	
(Second Semester.)			
Dairying III	City Milk Supply	2	125
Animal Husbandry XI	Animal Diseases	3	124
Agronomy VI	Farm Management	2	118
Sociology III or Economics I*b*	Rural Sociology / Principles of Economics	3	88 / 85
Elective		6	
		16	

AGRICULTURAL-CHEMICAL GROUP

Sophomore Year.

(First Semester.)			
Horticulture III*a*	Trucking	2	120
Chemistry I-II*a*	General Inorganic Chemistry	5	77
Botany II	Plant Physiology	3	76
Zoology I*a*	General Zoology	3	97
Military Science II*a*	Field Regulations	1	91
Elective		2	
		16	
(Second Semester.)			
Agronomy II	Fertilizers	3	117
Horticulture III*b*	Trucking	2	120
Chemistry I-II*b*	General Inorganic Chemistry	5	77
Zoology I*b*	General Zoology	3	97
Zoology III	Entomology	3	98
Military Science II*b*	Manual of Guard Duty	1	91
		17	

Junior Year.

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester.)			
Chemistry IV*a*	Qualitative Analysis	5	78
Bacteriology I	General Bacteriology	3	98
Chemistry V*a*	Organic Chemistry	3	78
Elective		5	
		16	
(Second Semester.)			
Chemistry IV*b*	Qualitative Analysis	5	78
Agricultural Bacteriology II	Soil and Dairy Bacteriology	3	99
Chemistry V*b*	Organic Chemistry	3	78
Elective		5	
		16	

Senior Year.

(First Semester.)			
Chemistry VII	Quantitative Analysis	7	78
Economics I*a*	Principles of Economics	3	85
Elective		6	
		16	
(Second Semester.)			
Chemistry VII	Quantitative Analysis	7	78
Economics Ib	Principles of Economics	3	85
Elective		6	
		16	

AGRICULTURAL-NORMAL GROUP

Sophomore Year

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester)			
Horticulture III*a*	Trucking	2	120
Chemistry I-II*a*	General Inorganic Chemistry	5	77
Botany II	Plant Physiology	3	76
Zoology I*a*	General Zoology	3	97
Military Science II*a*	Field Regulations	1	91
Elective		2	
		16	
(Second Semester)			
Agronomy II	Fertilizers	3	117
Horticulture III*b*	Trucking	2	120
Chemistry I-II*b*	General Inorganic Chemistry	5	77
Zoology III	Entomology	2	98
Military Science II*b*.	Manual of Guard Duty	1	91
Elective		2	
		16	

Junior Year

(First Semester)			
Education I*a*	Psychology	3	189
Education III*a*	Special Methods	3	189
Dairying I	Dairy Testing	2	125
Agronomy III	Field Crops	3	117
Animal Husbandry V	Animal Feeding	3	123
Horticulture IV	Citrus Culture	3	121
		17	
(Second Semester)			
Education II*b*	Methods of Study	3	189
Education IV*b*	School Management and Supervision	3	189
Dairying II	Farm Buttermaking	2	125
Agronomy IV	Forage Crops and Grasses	2	118
Agronomy V	Rural Law and Farm Accounts	3	118
Horticulture V	Citrus Harvesting and Marketing	2	121
		15	

Senior Year

Name of Courses	Nature of Work	Hours Per Week	Description, See Page
(First Semester)			
Education V*a*	History of Education	3	190
Education VII*a*	Principles and Philosophy of Education	3	190
Agricultural Economics III	Rural Economics	3	86
Chemistry III*a*	Qualitative Analysis	3	
Agricultural Eng. III	Buildings, Roads, Irrigation and Drainage	3	78 118
Agricultural Education II*b*	Methods of Teaching Agriculture	1	119
		16	
(Second Semester)			
Education VI *b*	Secondary Education	3	190
Education VII*b*	Principles and Philosophy of Education	3	190
Sociology III	Rural Sociology	3	88
Chemistry VI*b*	Quantitative Analysis	3	78
Agronomy VI	Farm Management	2	118
Agricultural Education I	Extension Teaching	2	119
		16	

DEPARTMENTS OF INSTRUCTION

AGRONOMY AND AGRICULTURAL ENGINEERING

PROFESSOR VERNON

MR._____

MR. KING

AGRONOMY

Agronomy is the science and art of crop production. It includes—Soils: Classification, fertility, cultivation and improvement; Crops: Classification, production and improvement; and Management: The application of economic business methods to farm practices.

The laboratory work and field observations aim to fix the principles learned in the class room and give them practical application.

AGRONOMY A*a*.—*Elements of Agronomy*.—A study of soils and soil fertility in their relations to plant growth, and the underlying principles governing the production of field and forage crops. (*Eleventh Grade, Practice High School, Teachers' College;* 3 *hours.*)

AGRONOMY I.—*Soil Physics*.—The origin, formation, classification, moisture, ventilation and temperature of soils; and general methods of soil management and amelioration are among the subjects to be presented in this course. (*Freshman year;* 2 *hours.*)

AGRONOMY II*b*.—*Fertilizers*.—The nature of plant food and its relation to the composition of soils, sources and composition of commercial fertilizers and principles governing their application, the making and economical use of farm manures, fertilizer requirements of various crops, and other related topics will form the subjects of discussion in this course. (*Sophomore year;* 3 *hours.*)

*The letter *a* after a numeral indicates that the course is given during the first semester, the letter *b* during the second semester. Where neither *a* nor *b* appears, the course, unless otherwise explained, continues throughout the year.

AGRONOMY III*a*.—*Field Crops*.—The various grain, fiber and sugar crops will be discussed with respect to their habits of growth, soil adaptations, fertilizer requirements, general methods of tillage and harvesting, and the most profitable forms in which to market them. Special attention will be given to corn, cotton and sugar cane. (*Junior year; class* 2 *hours, Laboratory* 2 *hours; credit* 3 *hours.*)

AGRONOMY IV*b*.—*Forage Crops and Grasses*.—A study will be made of forage crops and grasses, including an investigation into their adaptability to the various Florida soils, seeding and cultural methods, harvesting and storing, composition and use, illustrated by specimens brought before the students and by field observations. (*Junior year; Class* 1 *hour, Laboratory* 2 *hours; Credit* 2 *hours.*)

AGRONOMY V*b*.—*Rural Law and Farm Accounts*.—Classification of property, boundaries, fences, stock laws, rents, contracts, deeds, mortgages, taxes, laws governing shipping, and other topics of special interest to farmers will be treated; and a system of farm bookkeeping will be worked out, using the transactions of the College farm as a basis for material for instruction. (*Junior year;* 3 *hours.*)

AGRONOMY VI*b*.—*Farm Management*.—The course embraces a study of the principles underlying farm management; specialized and general farming; problems of labor, machinery, storing, marketing; laying out farms, systems of rotation, etc. (*Senior year;* 2 *hours.*)

AGRICULTURAL ENGINEERING

AGRICULTURAL ENGINEERING A*b*.—*Elements of Agricultural Engineering*.—A study of farm machinery and farm motors, irrigation, drainage, buildings, sanitation, roads, fences, etc., elements essential to profitable plant and animal production and the making and maintenance of comfortable, healthful homes. (*Twelfth grade, Practice High School, Teachers' College;* 3 *hours.*)

AGRICULTURAL ENGINEERING I*a*.—*Farm Machinery*.—The course includes a study of the history of the development, details of construction, functions, methods of operation and care of the various forms of tillage, seeding and

harvesting machinery. Special attention is given to such machinery as plows, harrows, seeders and drills, corn and Irish potato planters, cultivators and weeders, mowers and rakes, potato diggers, spraying machines, and vehicles. (*Freshman year; Class* 1 *hour, Laboratory* 2 *hours; Credit* 2 *hours.*)

AGRICULTURAL ENGINEERING II*b*.—*Farm Motors.*—The course covers a study of farm power, water power, horse powers, windmills; water, air, and oil cooled internal-combustion engines—stationary, portable and tractors—using gas, gasoline, naphtha, kerosene or crude oil as fuel; steam engines—stationary and traction, in their relation and application to farm work. (*Freshman year; Class* 1 *hour, Laboratory* 2 *hours; Credit* 2 *hours.*)

AGRICULTURAL ENGINEERING III*a*.—*Buildings, Roads, Irrigation and Drainage.*—In this course such topics as the construction of farm residences, barns and other farm buildings; the laying out of roads and fields; underdrainage; and irrigation plants will be considered and the students will be given practice in drawing plans and writing specifications. (*Senior year;* 3 *hours.*)

AGRICULTURAL EDUCATION

AGRICULTURAL EDUCATION I*b*.—*Extension Teaching.*—A course of lectures covering the history, methods, purposes, and results of extension teaching. (*Senior year;* 2 *hours.*)

AGRICULTURAL EDUCATION II*b*.—*Methods of Teaching Agriculture.*—This is a special course of lectures in methods of presenting agricultural subjects. It will include materials and laboratory usage. (*Eleventh or Twelfth Grades, Practice High School, Teachers' College;* 1 *hour.*)

AGRICULTURAL SEMINAR.—Subjects of special interest to the students will be investigated. Papers will be prepared and at set intervals presented for correction and discussion. (*Freshman year;* 1 *or* 2 *hours.*)

HORTICULTURE

PROFESSOR FLOYD

Horticulture is applied to the cultivation of useful and ornamental garden plants and orchard fruits. These are the plants most intimately associated with the private life of the home. In a sub-tropical climate unusual opportunities for practical effort and interesting study are presented. The wonderful variety of plants, the peculiar problems involved in their growth and development, and the accomplishments of those who have given time and labor to the solution of those problems, offer inviting fields for study and experimentation. Both the practical and the æsthetic tendencies may be cultivated.

The department with its orchard, garden, laboratory, and library offers fine opportunity for instruction, experiment and research.

HORTICULTURE A*b*.—*Elements of Horticulture*.—A study of varieties and culture requirements of our principal fruits and vegetables; location of orchards and gardens with reference to soils, climate and markets; protection from insects and diseases, harvesting and marketing, styles of decorative planting adapted to home and school. (*Eleventh Grade, Practice High School, Teachers' College; 3 hours.*)

HORTICULTURE I*a*.—*Plant Propagation*.—Study and practice in propagation by means of division, cutting, layering, budding and grafting; seed selection, storing, and testing, and the fundamental physiological processes. (*Freshman year; 2 hours.*)

HORTICULTURE II*b*.—*Greenhouse Management*.—This includes the construction, heating, planting, and care of greenhouses, veranda greenhouses, the growing of ornamentals and forcing of vegetables. (*Freshman year; 2 hours.*)

HORTICULTURE III.—*Trucking*.—This course includes a study of the vegetables adapted to Florida, the seasons in which they are grown, cultural methods, fertilizing, irrigating, packing and marketing. (*Sophomore year; 2 hours.*)

HORTICULTURE IV*a*.—*Citrus Culture*.—This embraces a study of suitable soils for citrus groves, their preparation, planting, cultivation, fertilization, selection of varieties, and the use of cover crops. (*Junior year; 3 hours.*)

HORTICULTURE V*b*.—*Citrus Harvesting and Marketing*. —This includes methods of picking, handling, washing, drying, packing, shipping, and storing citrus fruits. Attention will also be given to identifying the leading commercial varieties and judging by the use of the score card. (*Junior year; 2 hours.*)

HORTICULTURE VI*a*.—*Insects and Diseases of Citrus Fruits*.—This is a study of the injurious insects, and of important physiological and fungus diseases and their treatment. (*Senior year; 3 hours.*)

HORTICULTURE VII*a*.—*Deciduous Fruits*.—This is a study of the growing of peaches, plums, pears, persimmons, grapes, pecans, etc., the varieties adapted to the State, their planting, cultivation, diseases and insect enemies. (*Junior year; 3 hours.*)

HORTICULTURE VIII*b*.—*Plant Breeding*.—Cross pollination and hybridization of plants, improvement by selection, breeding for special qualities, with field work and a study of the methods of successful breeders, are included in this course. (*Junior year; 3 hours.*)

HORTICULTURE IX*a*.—*Forestry*.—A course on the principles of forestry, forest cropping, protecting the home wood lot, use of Florida woods, varieties of timber trees, and the influences of the forests on the other industries of the State. (*Junior or Senior year; 3 hours.*)

HORTICULTURE X*b*.—*Landscape Gardening*.—The principles underlying the various styles of landscape gardening, plants suitable for planting, improvement of the home grounds, making more attractive school and public grounds, are some of the topics studied. (*Senior year; 2 hours.*)

HORTICULTURE XI*b*.—*Development of American Horticulture*.—An historical study of the development of American Horticulture. (*Junior or Senior year; 2 hours.*)

ANIMAL HUSBANDRY AND DAIRYING

PROFESSOR WILLOUGHBY

ANIMAL HUSBANDRY.

Animal Husbandry includes subjects relating to the domesticated animals, their history, classification, and judging; breeding, selection, and improvement; feeding, care and management; the production and marketing of beef, pork, milk and other animal products; and the prevention and treatment of ordinary diseases of farm animals.

Live stock raising commands a steady income and is a most valuable aid in maintaining soil fertility. In view of the fact that this industry will become an important factor in the general prosperity of the State, the instruction is being broadened and the equipment strengthened as rapidly as funds will permit.

ANIMAL HUSBANDRY A*a*.—*Elements of Animal Husbandry.*—A brief course of study of breeds and types of farm animals, with principles governing their care, feeding and management; some discussion of the production of meat, milk and other animal products. (*Twelfth Grade, Practice High School, Teachers' College; 3 hours.*)

ANIMAL HUSBANDRY I*a*.—*Types and Classes of Horses, Mules, and Swine.*—Study of the various types and market classes of horses, mules, and swine; use of score card and comparative methods of judging—giving attention to the relationship of form and temperament to production. Animals upon the College Farm will be used for demonstration, and occasional trips made to nearby stock farms and stables. (*Freshman year; 2 hours.*)

ANIMAL HUSBANDRY II*b*.—*Types and Classes of Cattle, Sheep and Goats.*—Study of the various types and market classes of beef and dairy cattle, sheep and goats, following the same method of study as in course I*a*. (*Freshman year; 2 hours.*)

ANIMAL HUSBANDRY III*a*.—*Breeds of Live Stock.*—Study of history and characteristics of the principal breeds of horses, mules, cattle, sheep, and swine; supplemented by exhibit of best specimens obtainable from stables, herds

and flocks, with use of illustrative material, photographs, lantern slides. (*Optional in Sophomore year, Elective in other years;* 3 *hours.*)

ANIMAL HUSBANDRY. IV*b*.—*Poultry Culture.*—Study of the principal breeds of poultry; supplemented by exhibits and judging of best specimens obtainable; location and construction of houses and runs; methods of breeding, incubation and brooding; feeding and marketing poultry; management of flock and treatment of diseases. (*Optional in Sophomore year, Elective in other years;* 3 *hours.*)

ANIMAL HUSBANDRY V*a*.—*Animal Feeding.*—Study of the relation of food to animal life; digestion and assimilation, the formation of animal tissues from nutrients in feeds; study and practice with digestion tables and feeding standards; practice in compounding and balancing rations for various farm animals under different conditions. (*Junior year;* 3 *hours.*)

ANIMAL HUSBANDRY VI*b*.—*Animal Breeding.*—Study of the principles underlying the breeding of animals, including heredity, variation, atavism, natural and artificial selection; application of breeding principles to foundation and management of a breeding herd; relative values of pedigrees and performance records; line breeding, close breeding, proper environment, Mendel's Law. (*Junior year;* 3 *hours.*)

ANIMAL HUSBANDRY VII*a*.—*Beef Production.*—Study of practical methods in beef production, including selection of feeders, feeding and management of beef cattle, finishing and marketing, slaughter and packing-house methods. Brief consideration of same subjects in mutton production will be included in the course. (*Junior year;* 2 *hours.*)

ANIMAL HUSBANDRY VIII*b*.—*Dairy Farming.*—Study of location and land suited to dairy farming, construction of sanitary barns, dairy houses, silos; selection of breeds, feeding and management of the dairy herd, testing and herd records, growing feed crops for pastures, soiling and silo; marketing dairy products. (*Junior year;* 2 *hours.*)

ANIMAL HUSBANDRY IX*a*.—*Pork Production*.—Consideration of location of a hog farm, breeds of swine suited to the South, breeding methods, growing young stock, feeds for grazing and fattening; feeding and managing the herd, marketing and slaughter, curing meats on the farm. (*Senior year;* 2 *hours*.)

ANIMAL HUSBANDRY X*a*.—*Animal Hygiene*.—Brief study of anatomy and physiology of horses and cattle; care and training of young animals, prevention of disease, disinfection, sanitation; common sporadic diseases of animals, symptoms and treatment. (*Senior year;* 3 *hours*.)

ANIMAL HUSBANDRY XI*b*.—*Animal Diseases*.—Continuation of study of common diseases of farm animals, including contagious and infectious diseases, symptoms and treatment; simple surgical operations for the farm, castration, dehorning; properties and action of medicines suitable for farm use; occasional clinics as opportunity is offered. (*Senior year;* 3 *hours*.)

ANIMAL HUSBANDRY XII*a*.—*Poultry Practice*.—Advanced study and practice in the feeding and management of poultry, selection and testing of eggs, principles of incubation, development of embryo and chick; brooder methods, care of chickens; advanced judging work. (*Elective in Junior and Senior years, and for graduates;* 2 *hours*. Must be preceded by Course IV*b* or its equivalent.)

ANIMAL HUSBANDRY XIII*a*.—*Animal Nutrition*.—Advanced work in study of physiology of nutrition, including digestion, metabolism, calorimetry, energy values, utilization of digestible nutrients in maintenance, growth, work, meat and milk production. (*Elective in Junior and Senior years, and for graduates;* 2 *hours*.)

ANIMAL HUSBANDRY XIV*b*.—*Animal Conformation*.—Advanced study of form and characteristics of animal breeds and types, including measurement and comparison of details of structure, with special reference to utility. (*Elective in Junior and Senior years, and for graduates;* 2 *hours*.)

DAIRYING

Dairying includes the production of milk, its care and handling, composition and testing; fermentations and their control; manufacturing into market products, butter, cheese, ice creams; methods of marketing sanitary dairy products, factory management and accounting.

The opportunities for supplying dairy products are practically unlimited in the South, while prices are good and the demand is increasing. It is believed this industry will enlarge as its possibilities become better understood, and thus save for citizens of Florida the large sums that are now being spent in other States for dairy products.

DAIRYING I*a*.—*Dairy Testing*.—Study of milk, its secretion, composition and properties; testing milk and its products by the Babcock method and lactometer; moisture tests for butter, acid tests for fermentation. (*Sophomore year; 2 hours.*)

DAIRYING II*b*.—*Farm Buttermaking*.—Study of methods of creaming, operation and care of cream separators; ripening cream and use of starters; churning, manufacturing and marketing butter. (*Sophomore year; 2 hours.*)

DAIRYING III*b*.—*City Milk Supply*.—Methods of producing sanitary milk; transportation and marketing; care in the home; Pasteurization for city supply; methods of milk inspection; study of score cards for dairy farms, milk and cream contests. (*Senior year; 2 hours.*)

DAIRYING IV*b*.—*Dairy Manufactures*.—Advanced work in making butter, cottage and Cheddar cheese, fermented milks, ice cream and various market products related to the dairy; creamery management and accounting. (*Elective in Junior and Senior years, and for graduates; 2 hours.*)

OTHER DEPARTMENTS

In order to avoid repetition, detailed descriptions of the required and elective subjects in other departments of the College of Agriculture are not printed here. The courses in Bacteriology, Botany, Chemistry, Economics, English, Entomology, Geology, History, Latin, Mathematics, Military Science, Modern Languages and Zoology, are outlined

in the section of the catalogue devoted to the College of Arts and Sciences; and courses in Education in the section devoted to the Teachers' College.

SHORT COURSES IN AGRICULTURE

J. J. VERNON, M. S. A., DIRECTOR.

Practically all of the agricultural colleges of the United States have found short courses necessary in order to reach a large class of young farmers and prospective farmers. It has seemed unwise to withhold from this deserving class of wealth producers the advantages of the equipment and instruction in agriculture generously provided by the Government and State appropriations. Men who have completed a high school course are fitted to enter the regular college course. In the Middle and Short Courses the same advantages are thrown open to those who cannot enter the Long course, and the results obtained indicate the wisdom of the step. Since the value of such courses has been satisfactorily demonstrated the following courses are offered, designed to meet the varying needs of the farmer.

MIDDLE COURSE IN AGRICULTURE

For the convenience and accommodation of young farmers and young men preparing to farm who cannot meet the requirements for entrance to the Freshman year, or who may not wish to pursue a four-year college course and yet desire to obtain thorough training in practical and scientific agriculture, the following two-year course in agriculture is offered. The course is not designed to supplant or in any way to be a substitute for the regular college course in agriculture as outlined above:

Entrance Requirements.—The entrance requirements for admission to the Middle Course are:

English	2 units
Mathematics	2 units
History	1 unit
Elective	3 units
	8 units

These requirements are equivalent to the work com-

pleted in the tenth grade or Junior high schools. Students must be at least sixteen years of age to be admitted.

Those who cannot satisfy these entrance requirements may be admitted to the Middle Course upon showing a good knowledge of the common school branches, good moral standing, and an earnest desire to profit by the studies pursued.

Title.—The title of Graduate in Farming (G.F.) will be conferred upon students who satisfy the entrance requirements and complete the Middle Course in Agriculture.

Certificates.—Certificates will be granted to those who complete any of the Short Courses, including those who complete the Middle Course but cannot satisfy the entrance requirements.

Students in all Short Courses may elect studies in the Practice High School, Teachers' College, subject to the approval of the Dean.

MIDDLE COURSE

Leading to the Title of Graduate in Farming

First Year

Names of Courses.	Nature of Work.	Hours Per Week	Description, See Page
(First Semester)			
Agronomy A	Elements of Agronomy	3	117
Animal Husbandry A	Elements of Animal Husbandry	3	122
Agricultural Engineering I	Farm Machinery	2	118
Agricultural Seminar		1	119
Library Work		R	
Elective		9	
		18	
(Second Semester)			
Agronomy Ib	Soil Physics	2	117
Horticulture A	Elements of Horticulture	3	120
Animal Husbandry IV	Poultry Culture	3	123
Agricultural Engineering II	Farm Motors	2	119
Agricultural Seminar		1	119
Library Work		R	
Elective		7	
		18	

Second Year

(First Semester)			
Horticulture III*a*	Trucking	2	120
Agronomy I*a*	Soil Physics	2	117
Horticulture I	Plant Propogation	2	120
Animal Husbandry I	Types and Classes of Horses, Mules and Swine	2	122
Elective		10	
		18	
(Second Semester)			
Horticulture III*b*	Trucking	2	120
Agronomy II	Fertilizers	3	117
Agronomy V	Rural Law and Farm Accounts	3	118
Animal Husbandry II	Types and Classes of Cattle, Sheep and Goats	2	122
Elective		8	
		18	

NOTE.—A total of 8 actual hours of library work required.

MIDDLE COURSE

Names of Courses.	Nature of Work.	Hours Per Week	Description, See Page
Elective Studies:			
(First Semester)			
Agronomy III	Field Crops	3	117
Horticulture IV	Citrus Culture	3	121
Horticulture VI	Insects and Diseases of Citrus Fruits	3	121
Horticulture VII	Deciduous Fruits	3	121
Horticulture IX	Forestry	3	121
Animal Husbandry III	Breeds of Live Stock	3	122
Animal Husbandry V	Animal Feeding	3	123
Animal Husbandry VII	Beef Production	2	123
Animal Husbandry IX	Pork Production	2	124
Animal Husbandry X	Animal Hygiene	3	124
Dairying I	Dairy Testing	2	125
Agricultural Engineering III	Buildings, Roads, Fences, Irrigation and Drainage	3	119
Botany I*a*	General Botany	3	76
Botany II	Plant Physiology	3	76
Bacteriology Ia	General Bacteriology	3	98
Zoology I*a*	General Zoology	3	97
Chemistry I-II*a*	General Inorganic Chemistry	5	77
English I*a*	Rhetoric, Composition	3	79
Mathematics I*a*	Plane Trigonometry	2	89
Agronomy IV	Forage Crops and Grasses	2	118
(Second Semester.)			
Agronomy V	Rural Law and Farm Accounts	3	118
Agronomy VI	Farm Management	2	118
Horticulture II	Greenhouse Management	2	120
Horticulture V	Citrus Harvesting and Marketing	2	121
Horticulture VIII	Plant Breeding	3	121
Horticulture X	Landscape Gardening	2	121
Horticulture XI	Development of American Horticulture	2	121
Animal Husbandry VI	Animal Breeding	3	123
Animal Husbandry VIII	Dairy Farming	2	123
Animal Husbandry XI	Animal Diseases	3	124
Animal Husbandry XII	Poultry Practice	2	124
Dairying II	Farm Buttermaking	2	125
Dairying III	City Milk Supply	2	125
Dairying IV	Dairy Manufactures	2	125
Agricultural Education I	Extension Teaching	2	119
Botany I*b*	General Botany	3	76
Agricultural Bacteriology II*a*	Soil and Dairy Bacteriology	3	99

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
Zoology I*b*	General Zoology	3	97
Zoology III	Entomology	3	98
Chemistry I-II*b*	General Inorganic Chemistry	5	77
English I*b*	Rhetoric, Composition	3	79
Mathematics I*b*	Plane Trigonometry	2	89

NOTE.—Students shall choose from these elective studies a sufficient number to make a total of not less than sixteen nor more than eighteen hours per week, except on approval of the Dean.

ONE-YEAR COURSE IN AGRICULTURE

This course will meet the needs of those who can spend only one year at school. The only requirement for admission is a good knowledge of the common school branches.

Names of Courses.	Nature of Work.	Hours Per Week	Description, See Page
(First Semester)			
Agronomy A	Elements of Agronomy	3	117
Agronomy I*a*	Soil Physics	2	117
Agronomy III	Field Crops	3	117
Horticulture I	Plant Propagation	2	121
Horticulture III*a*	Trucking	2	120
Horticulture IV	Citrus Culture	3	121
Horticulture VI	Insects & Diseases of Citrus Fruits	3	121
Horticulture VII	Deciduous Fruits	3	121
Animal Husbandry A	Elements of Animal Husbandry	3	122
Animal Husbandry I	Types and Classes of Horses, Mules and Swine	2	122
Animal Husbandry III	Breeds of Live Stock	3	122
Animal Husbandry V	Animal Feeding	3	123
Animal Husbandry VII	Beef Production	2	123
Animal Husbandry IX	Pork Production	2	124
Animal Husbandry X	Animal Hygiene	3	124
Dairying I	Dairy Testing	2	125
Agricultural Engineering I	Farm Machinery	2	118
Agricultural Engineering III	Buildings, Roads, Fences, Irrigation & Drainage	3	119
Agricultural Seminar		1	119

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
Agronomy IV	Forage Crops & Grasses	2	118
Agronomy V	Rural Law and Farm Accounts	3	118
Agronomy VI	Farm Management	2	118
(Second Semester)			
Agronomy I*b*	Soil Physics	2	117
Agronomy II	Fertilizers	3	117
Horticulture A	Elements of Horticulture	3	120
Horticulture II	Greenhouse Management	2	120
Horticulture III*b*	Trucking	2	120
Horticulture V	Citrus Harvesting and Marketing	2	121
Horticulture X	Landscape Gardening	2	121
Animal Husbandry II	Types and Classes of Cattle, Sheep and Goats	2	122
Animal Husbandry IV	Poultry Culture	3	123
Animal Husbandry VIII	Dairy Farming	2	123
Animal Husbandry XI	Animal Diseases	3	124
Dairying II	Farm Buttermaking	2	125
Dairying III	City Milk Supply	2	125
Agricultural Engineering II	Farm Motors	2	119
Agricultural Seminar		1	119

NOTE.—Students shall select not less than sixteen nor more than eighteen hours per week except on approval of the Dean.

FOUR-MONTH SHORT COURSES IN AGRICULTURE FOR FARMERS

These courses, one beginning September 23, 1913, and the other February 3, 1914, will appeal to practical farmers who wish to increase their productive power, to young men who expect to become farmers, and to those who are turning from other lines of work in order to possess land and obtain the advantages of country life.

FOUR-MONTH SHORT COURSE IN AGRICULTURE

Beginnig September 23, 1913.

NATURE OF WORK	Hours Per Week	Description, See Page
*Elements of Agronomy	3	117
Soil Physics	2	117
Field Crops	3	117
Plant Propagation	2	120
Trucking	2	120
Citrus Culture	3	121
Insects and Diseases of Citrus Fruits	3	121
Deciduous Fruits	3	121
Elements of Animal Husbandry	3	122
Horses, Mules and Swine	2	122
Breeds of Live Stock	3	122
Animal Feeding	3	123
Beef Production	2	123
Pork Production	2	124
Animal Hygiene	3	124
Dairy Testing	2	125
Farm Machinery	2	118
Buildings, Roads, Fences, Irrigation and Drainage	3	119
Agricultural Seminar	1	119

FOUR-MONTH SHORT COURSE IN AGRICULTURE

Beginning February 3, 1914.

NATURE OF WORK	Hours Per Week	Description, See Page
*Soil Physics	2	117
Fertilizers	3	117
Forage Crops and Grasses	2	118
Rural Law and Farm Accounts	3	118
Farm Management	2	118
Elements of Horticulture	3	120
Greenhouse Management	2	120
Trucking	2	120
Citrus Harvesting and Marketing	2	121
Landscape Gardening	2	121
Cattle, Sheep and Goats	2	122
Poultry Culture	3	123
Dairy Farming	2	123
Animal Diseases	3	124
Farm Buttermaking	2	125
City Milk Supply	2	125
Farm Motors	2	118
Agricultural Seminar	1	119

*NOTE.—Students shall select not less than sixteen nor more than eighteen hours per week, except upon the approval of the Dean.

FOUR WEEK SHORT COURSE IN AGRICULTURE FOR FARMERS.

Beginning November 17, 1913, and ending December 13, 1913.

The Four-week Farmers' Short Course in Agriculture is offered to meet the needs of those who for any reason cannot pursue a longer course. It is especially suited to two classes: First, busy farmers of all ages who, recognizing their needs for better preparation, earnestly desire more knowledge of scientific agriculture in order to render more effective the practical knowledge they have already gained; and second, ambitious young men who are compelled to drop out of school and yet desire to devote a short time to special preparation for their lifework upon the farm.

There are no age limits and no educational requirements for entrance to the Farmers' Short Course except ability to receive benefit therefrom and an earnest desire for improvement along agricultural lines.

The course will consist of textbook study, lectures, laboratory work and field observation and demonstration. Trips of inspection will be made to large truck and stock farms in the vicinity of the University, and successful farmers will be called before the classes occasionally for the purpose of explaining their methods. The benefits of a thriving Agricultural Club will be open to all Short Course men.

The laboratory equipment, the thoroughbred stock and the farm used in the regular courses will be available for instruction in the Short Courses. The Agricultural Experiment Station, located at the University, will afford opportunity for observation and inquiry. Special care has been taken that the Farmers' Short Course should be arranged throughout to meet the needs and suit the conditions of the practical farmer.

The following subjects are included in the Farmers' Short Course in Agriculture:

Principles of Agriculture.
Soils.
Soil Laboratory.
Fertilizers.
  a. Chemical.
  b. Experimental.
  c. Practical.
Field Crops.
  a. General.
  b. Special.
  c. Experimental.
Crop Judging.

Agricultural Engineering.
  a. Farm Machinery.
  b. Farm Motors.
  c. Buildings, Fences and Roads.
  d. Drainage and Irrigation.
Plant Propagation.
Citrus Fruits and Citrus Culture.
Trucking.
  a. Crops.
  b. Marketing.
  c. Protection.
Types and Breeds of Live Stock.
Poultry Raising.
Stock Judging.
Animal Breeding.
Feeds and Feeding.
Dairying.
  a. Home Dairy.
  b. Feeding, Care and Management of the Dairy Herd.
Injurious Insects.
Plant Diseases.
Farm Bacteriology.
Farm Chemistry.
Library Research.

Expenses.—The necessary expenses for the Farmers' Short Course are as follows:

Board, one month, including room, heat and light	$16 00
Books, stationery, laundry and incidentals	9 00
Tuition free	00
Total	$25 00

NOTE.—The rooms are supplied with necessary furniture, but each student is required to bring sufficient bedding with him for his own use.

ONE-WEEK SHORT COURSE FOR CORN CLUB BOYS

Beginning December 15, 1913, and Ending December 20, 1913.

Some States are providing special courses for the Corn Club Boys, and it now seems desirable that Florida should do the same. Therefore the College of Agriculture will offer a Crop and Live Stock Course of One-week for Corn Club boys.

Since the University dormitories will be occupied by regular students at that time arrangements have been made, through the ministers of Gainesville, for boarding accommodations in the homes of the members of the several churches. A uniform charge of $4.00 each for the week has been agreed upon, which includes room and board. In estimating the total expense of the course, the railroad fare to and from Gainesville should be added.

There will be no fees or charges for the instruction.

AGRICULTURAL AND LIVE STOCK CONVENTIONS

On December 17, 18 and 19, 1912, a meeting of dairymen and live stock owners of the State was held at the Col-

lege of Agriculture, resulting in the formation of the Florida State Live Stock Association, which is now organizing County Clubs and aiding the work of cattle tick eradication and general improvement of the live stock industry.

Invitation has been extended to this Association to hold its second annual meeting at the College of Agriculture during the week of December 15 to 20, 1913, at the same time as the School for the Corn Club Boys.

The Dean of the College of Agriculture is authorized by the President of the University to extend a cordial invitation to all agricultural societies or organizations of the State to make the College of Agriculture the place for their meetings, provided arrangements are made in advance.

CORRESPONDENCE COURSES IN AGRICULTURE

Correspondence Courses in Agriculture for Teachers were first offered in 1908-09 and courses for farmers and their wives were added the following year. Fourteen courses for home study are now offered by the College of Agriculture. For a more complete description and terms see Division of University Extension, page 211.

All inquiries regarding Correspondence Courses should be addressed to J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida.

BOYS' CORN CLUBS AND GIRLS' GARDENING AND CANNING CLUBS

The Boys' and Girls' Clubs are now conducted as a cooperative movement between the United States Department of Agriculture on the one hand and the College of Agriculture of the University of Florida, Gainesville, and the Department of Home Economics of the Florida State College for Women, Tallahassee, on the other. Under this agreement the work in Florida has been placed in charge of the following persons:

J. J. Vernon, State Agent Demonstration Club Work.

Miss Agnes Ellen Harris, Assistant in Charge of the Girls' Department.

All communications regarding Boys' Corn Clubs should be addressed to J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida.

Address Miss Agnes Ellen Harris, Director Department of Home Economics, Florida State College for Women, Tallahassee, Florida, in regard to all matters relating to the Girls' Gardening and Canning Clubs.

For further details see Division of University Extension, page 221.

COLLEGE OF ENGINEERING

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

J. R. BENTON, B.S., Ph.D.,
Dean of the College of Engineering,
Professor of Physics and Electrical Engineering.

MAJOR E. S. WALKER, U.S.A., Retired,
Professor of Military Science and Assistant Professor of Civil Engineering.

A. J. WIECHARDT, M.E., M.M.E.,
Professor of Mechanical Engineering.

R. W. THOROUGHGOOD, C.E.,
Professor of Civil Engineering.

JAMES M. FARR, A.M., Ph.D.,
Professor of English.

EDWARD R. FLINT, B.S., Ph.D., M.D.,
Professor of Chemistry.

C. L. CROW, M.A., Ph.D.,
Professor of Modern Languages.

H. G. KEPPEL, A.B., Ph.D.,
Professor of Mathematics and Astronomy.

W. S. PERRY, A.B.,
Instructor in Physics and Electrical Engineering.

W. G. RANELS,
Instructor in Mechanic Arts.

SPECIAL LECTURERS FOR 1912-1913.

W. A. FISHER,
Superintendent of Wood Preservation, Atlantic Coast Line.

J. R. SLATTERY,
Major, Corps of Engineers, United States Army.

GENERAL STATEMENT

Aim and Scope.—It is the aim of the College of Engineering to furnish such training as will be useful to its graduates in the profession of engineering. The courses of instruction are similar to those offered in other American engineering schools of college grade; and the graduates are prepared to fill successfully such positions as are usually allotted to young engineers.

Scholastic training alone cannot make a competent engineer, any more than it can make a competent physician or lawyer. It can, however, fit a man to enter the profession of engineering; and it is an important element in ultimate success in that profession.

The work of the College of Engineering is divided among courses of study of the following types: (1) courses in the sciences fundamental to the practice of engineering, of which mathematics, chemistry, and physics are the most important; (2) courses in various branches of engineering practice in which those sciences are applied, such as structural engineering, steam and gas engineering, or electrical engineering; (3) courses in practical work, such as mechanic arts, drafting or surveying; and (4) courses contributing primarily to general culture, such as those in English and in Spanish.

Admission.—To gain admission to the Freshman class of the College of Engineering, a candidate must be prepared to offer 16 entrance units, of which 10 are prescribed. Of these 10 units, 3 must be in English, 4 in Mathematics, 1 or 2 in History, 2 or 1 in Science. The remaining 6 must be chosen from among the list of studies given on page 49, but not more than 4 can be from vocational subjects. These requirements are equivalent to the completion of the twelfth grade of the senior high schools, and are fully explained on pages 46 to 56.

Expenses.—See page 39.

Buildings and Equipment.—The principal building and headquarters of the College of Engineering is Engineering Hall. It is a three-story brick building, 122 feet by 73 feet,

with a one-story wing for boilers and steam engine laboratory. It provides class-rooms and drafting-rooms for all of the engineering departments of instruction, and various special laboratories, such as the hydraulic laboratory, dynamo laboratory, steam engine laboratory, and laboratory for testing materials.

For the shop work, a separate building is used. It is more fully described on page 31.

A part of the work of the College of Engineering coincides with that of the other colleges of the University, and for all such work the same classrooms and laboratories are utilized.

Suitable equipment is available for the courses requiring laboratory work, shop work, or field work in surveying, and is described more fully under the departments of instruction pages 155 to 166.)

Curricula and Degrees.—Four curricula, each requiring four years, are offered: one in Civil Engineering, one in Electrical Engineering, one in Mechanical Engineering, and one in Mechanic Arts. They lead to the degrees of Bachelor of Science in Civil Engineering (B. S. C. E.), Bachelor of Science in Electrical Engineering (B. S. E. E.), Bachelor of Science in Mechanical Engineering (B. S. M. E.), and Bachelor of Science in Mechanic Arts (B. S. M. A.), respectively.

The Freshman year is the same for all engineering students; the Sophomore year is the same for electrical and mechanical engineering students. The work in chemistry, English, Spanish, mathematics and physics is the same for all engineering students throughout the curriculum, and in part coincides with that provided for students in the College of Arts and Sciences. All engineering students take some work in drafting, shop practice, and surveying; but the time devoted to these subjects varies in the different curricula.

CIVIL ENGINEERING CURRICULUM

Leading to the Degree of Bachelor of Science in Civil Engineering.

Freshman Year

NAMES OF COURSES	NATURE OF WORK	*Hours Per Week First Semester	*Hours Per Week Second Semester	Description See Page
Descriptive Geometry		2	2	160
Drawing I	Elementary Drawing and Lettering (4 actual hours)	2	2	160
Drawing II	Descriptive Geometry Problems and Free-Hand Drawing (2 actual hours)	1	1	160
English I	Composition and Rhetoric	3	3	79
Mathematics I	Higher Algebra and Analytic Geometry	3	3	89
Mathematics II	Spherical Trigonometry and Calculus	1	1	89
Mechanic Arts I	Carpentry, Wood Turning (6 actual hours)	3	0	162
Mechanic Arts II	Wood Carving and Cabinet Work (6 actual hours)	0	3	162
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	1	91
Physics I	Mechanics, Heat, Acoustics, Optics	3	3	96
Physics II	Laboratory Work to accompany Physics I (4 actual hours)	2	2	97
		21	21	

Sophomore Year

Chemistry I	Inorganic Chemistry	3	3	77
Chemistry II	General Laboratory Chemistry (4 actual hours)	2	2	77
Mathematics III	Differential and Integral Calculus	3	3	89
Military Science II	Field Service Regulations, Manual of Guard Duty	1	1	91
Physics III	Electricity and Magnetism (classroom and laboratory work)	3	3	97
Railroads I	Curves and Earthwork	0	3	156
Spanish I	Elementary Spanish	3	3	93
Surveying I	Elementary Surveying	6	0	156
Surveying II	Topographic and Hydrographic Surveying	0	3	156
		21	21	

*In counting hours, each actual hour of laboratory, shop, drafting or field work is counted as one-half hour.

Junior Year

NAMES OF COURSES	NATURE OF WORK	*Hours Per Week First Semester	*Hours Per Week Second Semester	Description See Page
Drawing III	Mechanical Drawing to scale (3 actual hours)	1½	1½	160
Electrical Engineering Ia	Elementary general course	3	0	158
Graphic Statics I	Elementary Graphics; Roofs (5 actual hours)	0	2½	157
Hydraulics I	Elements of Hydraulics	0	3	157
Mathematics IV	Solid Analytic Geometry and Calculus	2	2	89
Mechanics I	Mechanism (4 actual hours)	2	2	162
Mechanics II	Analytic Mechanics	4	0	162
Mechanics III	Strength of Materials	0	4	162
Municipal Engineering I	Roads and Pavements	2	0	157
Railroads II	Preliminary and Final Location (6 actual hours)	3	0	157
Spanish II		3	3	93
Surveying III	Higher Surveying	0	2½	156
		20½	20½	

Senior Year

Contracts and Specifications		1	1	158
English VIII	Technical Essays	1	1	81
Graphic Statics II	Girders and Bridges	2½	0	157
Hydraulics II	Applications of Hydraulics	3	0	157
Mechanics IV	Analytic Mechanics	4	0	162
Municipal Engineering II	Water Supply, Disposal of Wastes	0	6	157
Municipal Engineering III	Concrete, Plain and Reinforced	4	0	158
Structural Engineering I	Theory and Design of Bridges and Buildings	5	0	158
Structural Engineering II	Theory of Continuous and Cantilever Bridges, Bridge Design	0	5	158
Bacteriology or Geology	General Elementary Course	0	5	98
Elective		0	3	82
		20½	21	

*In counting hours each actual hour of laboratory, shop, drafting or field work is counted as one-half hour.

ELECTRICAL ENGINEERING CURRICULUM

Leading to the Degree of Bachelor of Science in Electrical Engineering.

Freshman Year

NAMES OF COURSES	NATURE OF WORK	*Hours Per Week First Semester	Second Semester	Description See Page
Descriptive Geometry		2	2	160
Drawing I	Elementary Drawing and Lettering (4 actual hours)	2	2	160
Drawing II	Descriptive Geometry Problems and Free-Hand Drawing (2 actual hours)	1	1	160
English I	Composition and Rhetoric	3	3	79
Mathematics I	Higher Algebra and Analytic Geometry	3	3	89
Mathematics II	Spherical Trigonometry and Calculus	1	1	89
Mechanic Arts I	Carpentry, Wood Turning (6 actual hours)	3	0	163
Mechanic Arts II	Wood Carving and Cabinet Work (6 actual hours)	0	3	163
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	1	91
Physics I	Mechanics, Heat, Acoustics, Optics	3	3	96
Physics II	Laboratory Work to accompany Physics I (4 actual hours)	2	2	97
		21	21	

Sophomore Year

Chemistry I	Inorganic Chemistry	3	3	77
Chemistry II	General Laboratory Chemistry (4 actual hours)	2	2	77
Drawing III	Mechanical Drawing to scale (3 actual hours)	1½	1½	160
Mathematics III	Differential and Integral Calculus	3	3	89
Mechanic Arts III	Forge (3 actual hours)	1½	0	163
Mechanic Arts IV	Foundry (3 actual hours)	0	1½	163
Mechanics Arts V	Lectures to Accompany Mechanic Arts III and IV	½	½	164
Mechanics I	Mechanism (4 actual hours)	2	2	162
Military Science II	Field Service Regulations, Manual of Guard Duty	1	1	91
Physics III	Electricity and Magnetism (class room and laboratory work)	3	3	97
Spanish I	Elementary Spanish	3	3	93
		20½	20½	

*In counting hours, each actual hour of laboratory, shop, drafting or field work is counted as one-half hour.

Junior Year

NAMES OF COURSES	NATURE OF WORK	*Hours Per Week First Semester	Second Semester	Description See Page
Drawing IV	Machine Design (6 actual hours)	3	3	160
Electrical Engineering I*a*	Elementary General Course	3	0	158
Electrical Engineering I*b*	Direct Current Machinery	0	3	159
Hydraulics I	Elements of Hydraulics	0	3	157
Mathematics IV	Solid Analytic Geometry and Calculus	2	2	89
Mechanical Engineering I	Steam Engines (class room and laboratory work)	3	0	161
Mechanic Arts VI	Pattern Making (6 actual hours)	3	0	164
Mechanic Arts VII	Machine Shop Practice (6 actual hours)	0	3	164
Mechanics II	Analytic Mechanics	4	0	162
Mechanics III	Strength of Materials	0	4	163
Spanish II		3	3	93
		21	21	

Senior Year

Contracts and Specifications		1	1	158
Electrical Engineering II	Alternating Currents; Transmission; Electric Lighting	7	7	159
Electrical Engineering III	Telegraph and Telephone	2	2	159
English VIII	Technical Essays	1	1	78
Graphic Statics I	Elementary Graphics; Roofs (5 actual hours)	0	2½	157
Graphic Statics III	Machinery (4 actual hours)	2	0	161
Mechanical Engineering I	Steam Engines	0	3	161
Mechanics II	Analytic Mechanics	4	0	162
Elective		3	3	
		20	19½	

The elective must meet with the approval of the professor of electrical engineering; for the second semester it may be a thesis.

*In counting hours each actual hour of laboratory, shop, drafting or field work is counted as one-half hour.

MECHANICAL ENGINEERING CURRICULUM

Leading to the Degree of Bachelor of Science in Mechanical Engineering.

Freshman Year

NAMES OF COURSES	NATURE OF WORK	*Hours Per Week First Semester	Second Semester	Description See Page
Descriptive Geometry		2	2	160
Drawing I	Elementary Drawing and Lettering (4 actual hours)	2	2	160
Drawing II	Descriptive Geometry Problems and Free-Hand Drawing (2 actual hours)	1	1	160
English I	Composition and Rhetoric	3	3	
Mathematics I	Higher Algebra and Analytic Geometry	3	3	89
Mathematics II	Spherical Trigonometry and Calculus	1	1	89
Mechanic Arts I	Carpentry, Wood Turning (6 actual hours)	3	0	163
Mechanic Arts II	Wood Carving and Cabinet Work (6 actual hours)	0	3	163
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	1	91
Physics I	Mechanics, Heat, Acoustics, Optics	3	3	96
Physics II	Laboratory Work to accompany Physics I (4 actual hours)	2	2	97
		21	21	

*In counting hours each actual hour of laboratory, shop, drafting or field work is counted as one-half hour.

Sophomore Year

NAMES OF COURSES	NATURE OF WORK	*Hours Per Week First Semester	Second Semester	Description See Page
Chemistry I	Inorganic Chemistry	3	3	77
Chemistry II	General Laboratory Chemistry (4 actual hours)	2	2	77
Drawing III	Mechanical Drawing to Scale (3 actual hours)	1½	1½	160
Mathematics III	Differential and Integral Calculus	3	3	89
Mechanic Arts III	Forge (3 actual hours)	1½	0	163
Mechanic Arts IV	Foundry (3 actual hours)	0	1½	163
Mechanic Arts V	Lectures to accompany Mechanic Arts III and IV	½	½	164
Mechanics I	Mechanism (4 actual hours)	2	2	162
Military Science II	Field Service Regulations, Manual of Guard Duty	1	1	91
Physics III	Electricity and Magnetism (class room and laboratory work)	3	3	97
Spanish I	Elementary Spanish	3	3	93
		20½	20½	

Junior Year

Drawing IV	Machine Design (6 hours)	3	3	160
Electrical Engineering I*a*	Elementary general course	3	0	158
Hydraulics I	Elements of Hydraulics	0	3	157
Mathematics IV	Solid Analytic Geometry and Calculus	2	2	89
Mechanical Engineering I	Steam Engines, (class room and laboratory work)	3	3	161
Mechanic Arts VI	Pattern Making (6 actual hours)	3	0	164
Mechanic Arts VII	Machine Shop Practice (6 actual hours)	0	3	164
Mechanics II	Analytic Mechanics	4	0	162
Mechanics III	Strength of Materials	0	4	162
Spanish II		3	3	93
		21	21	

*In counting hours each actual hour of laboratory, shop, drafting or field work is counted as one-half hour.

Senior Year

NAMES OF COURSES	NATURE OF WORK	Hours Per Week First Semester	Hours Per Week Second Semester	Description See Page
Contracts and Specifications		1	1	158
Drawing V	Original Designs (6 actual hours)	3	3	161
English VIII	Technical Essays	1	1	81
Graphic Statics I	Roofs (4 actual hours)	0	2½	157
Graphic Statics III	Machinery (4 actual hours)	2	0	161
Mechanic Arts VIII	Machine Shop Practice (6 actual hours)	3	3	164
Mechanical Engineering II	Valve Gears (2 actual hours)	1	0	161
Mechanical Engineering III	Gas Engines	0	3	161
Mechanics IV	Analytic Mechanics	4	0	162
OPTIONAL				
Electrical Engineering	6 hours			
Flue Gas and Boiler Water Analysis	(2 actual hours) 1 hour			
Mechanical or Steam Engineering Laboratory	(12 actual hours) 6 hours			
Qualitative Analysis	(6 actual hours) 3 hours			
Research Work as arranged	Required	6	7½	
Steam Turbines				
Surveying	1st Semester 3 hours			
Thermodynamics	(6 actual hours) 3 hours			
	2nd Semester 5 hours			
		21	21	

MECHANIC ARTS CURRICULUM *

This course is made possible by the recent enlargement of the Teachers' College and the courses already offered in the Engineering and other colleges of the University.

It is offered in answer to the now fully established, but unfilled, demand for young men possessing this character of training in the manual arts and crafts. It is also offered in compliance with the Federal Act requiring beneficiaries of the Morrill funds to maintain at least one College of Agriculture and *Mechanic Arts,* which shall promote "The liberal and *practical* education of the *industrial classes* in the several *pursuits* and professions in life."

This course is expected and intended to aid materially in building up the manufacturing industries of Florida.

Its chief object is to impart to the student as complete a knowledge as possible of the means, methods, and processes involved in manufacturing such materials as wood and the common metals, but without excluding the textile fibers, sugar, or other materials used in the mechanic arts.

Together with this detailed knowledge, manual dexterity, or skillful manipulation of the materials used will be a very important requirement.

Its graduates may confidently expect to find ready employment at good salaries, as superintendents of manufactories, or as instructors of Arts and Crafts courses, which are now so generally taking the place of the older apprenticeship method of instruction.

Students taking this course will be required to spend *at least* one Summer vacation as an employee in an approved industrial establishment.

For details of this course the student is referred to the Mechanic Arts Curriculum, to be found on another page, and to the page references as found thereunder.

Those desiring the additional Degree B. S. M. E. may elect to complete the unfinished work of that course in one year, additional to the above.

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*Offered subject to the favorable action of the Legislature in providing adequate facilities and assistants.

MECHANIC ARTS CURRICULUM

Leading to the Degree of Bachelor of Science in Mechanic Arts.

Freshman Year

NAMES OF COURSES	NATURE OF WORK	Hours Per Week First Semester	Hours Per Week Second Semester	Description See Page
Drawing I	Elementary Mechanical Drawing and Lettering (4 actual hours)	2	2	160
English I	Composition and Rhetoric	3	3	79
Mathematics I	Higher Algebra and Analytic Geometry	3	3	89
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	1	91
Mechanic Arts I	Carpentry and Wood Turning	3	0	163
Mechanic Arts II	Wood Carving and and Cabinet Work	0	3	163
Mechanic Arts XI	Mechanical Technology	3	3	164
Physics I	Mechanics, Heat, Acoustics and Optics	3	3	96
Physics II	Laboratory to accompany Physics I (4 actual hours)	2	2	97
		20	20	

Sophomore Year

Chemistry I	Inorganic Chemistry	3	3	77
Chemistry II	General Laboratory Chemistry (4 hours)	2	2	77
Descriptive Geometry	Projections of lines and planes	2	2	160
Drawing II	Descriptive Geometry Problems and Free-Hand Drawing (2 actual hours)	1	1	160
Drawing III	Mechanical Drawing to Scale (3 hours)	1½	1½	160
Mathematics II	Spherical Trigonometry and Calculus	1	1	89
Mechanic Arts III	Forge Shop Practice (3 hours)	1½	0	163
Mechanic Arts IV	Foundry Practice (3 hours)	0	1½	163
Mechanics Arts V	Mechanical Technology. Lectures to accompany Mechanic Arts III and IV	½	½	164
Mechanic Arts XII	Additional Practice in Mechanic Arts, courses III and IV (3 hours)	1½	1½	165
Mechanics I	Mechanism or Kinematics (4 hours)	2	2	162
Military Science II	Field Service Regulations, Manual of Guard Duty	1	1	91
Physics III	Electricity and Magnetism.	3	3	97
		20	20	

Junior Year

NAMES OF COURSES	NATURE OF WORK	Hours Per Week First Semester	Hours Per Week Second Semester	Description See Page
Drawing IV	Machine Design (6 actual hours)	3	3	160
Electrical Engineering Ia	Elementary general course	3	0	158
Electives	In Education	3½	3½	
Hydraulics I	Elements of Hydraulics	0	3	157
Mathematics III	Differential and Integral Calculus	3	3	89
Mechanic Arts VI	Pattern Making	3	0	164
Mechanic Arts VII	Machine Shop Practice	0	3	164
Mechanic Arts XIII	Mechanical Technology	1	1	165
Mechanic Arts XIV	Instruction Practice in Mechanic Arts I and II	1½	1½	165
Spanish I	Elementary Spanish	3	3	93
		21	21	

Senior Year

Drawing V	Original Designs (6 actual hours)	3	3	161
Electives	As Approved	4	0	
English VIII	Technical Essays	1	1	78
Mathematics IV	Solid Analytical Geometry and Calculus	2	2	89
Mechanic Arts VIII	Machine Shop Practice (6 hours)	3	3	164
Mechanic Arts XV	Mechanical Technology	1	1	165
Mechanic Arts XVI	Instruction Practice in Mechanic Arts III and IV	1½	1½	166
Mechanical Engineering	Elementary Heat Engines	3	3	
Mechanics III	Strength of Materials	0	4	162
Spanish II	Continuation of Spanish I	3	3	93
		21½	21½	

Fifth Year, Optional

NAMES OF COURSES	NATURE OF WORK	Hours Per Week First Semester	Hours Per Week Second Semester	Description See Page
Contracts	Contracts and Specifications	1	1	158
Graphics I	Elementary Graphic Statics and Roofs	0	2½	157
Graphics III	Graphic Statics of Machinery	2	0	161
Mechanical Engineering II	Valve Gears	1	0	161
Mechanical Engineering III	Gas Engines	0	3	161
Mechanics II	Analytic Mechanics	4	0	162
Mechanics IV	Analytic Mechanics	4	0	162
Electives	As prescribed for Mechanical Engineers	6	7½	
		18	14	

The curricula of the preceding pages will go into effect in the autumn of 1913. Students who have entered the University prior to that time, and those who enter with advanced standing during the year 1913-1914, will follow the curricula previously in force, giving the arrangement of studies which follows:

Sophomore Year

FOR THE CLASS TO GRADUATE IN 1916.

(Same for all engineering students)

Names of Courses	Nature of Work	Hours Per Week
Chemistry I	Inorganic Chemistry	3
Drawing II	Mechanical Drawing to Scale (3 actual hours)	1½
English II*B*	Exposition	1
Mathematics II*a*	Higher Algebra, Analytic Geometry	3
Mathematics II*b*	Calculus	3
Military Science II	Field Service Regulations, Manual of Guard Duty	1
Physics I	Mechanics, Heat, Acoustics, Optics	3
Physics II	Laboratory Work to Accompany Physics I (4 actual hours)	2
Shop II	Forge and Foundry (3 actual hours)	1½
Surveying I	Use of Compass, Level and Transit; Map Drawing (5 actual hours)	2½
		21½

Junior Year

FOR THE CLASSES TO GRADUATE IN 1915 AND 1916.

Names of Courses	Nature of Work	Hours Per Week.
	(In Civil Engineering)	
Hydraulics I and II		3
Mathematics III*a*	Calculus	3
Mathematics III*b*	Analytic Geometry, Calculus	2
Mechanics I	Analytic Mechanics, Strength of Materials	4
Physics III	Electricity and Magnetism (class-room and laboratory work)	3
Railroad Engineering (second semester)		6
Surveying II (first semester)	Topographic, Geodetic and Hydrographic Surveying (6 actual hours)	
		21
	(In Electrical or Mechanical Engineering)	
Drawing III	Machine Design (6 actual hours)	3
Electrical Engineering I (second semester)	Electrical Machinery, Dynamo Laboratory	3
Hydraulics I (first semester)		
Mathematics III*a*	Calculus	3
Mathematics III*b*	Analytic Geometry, Calculus	2
Mechanics I	Analytic Mechanics, Strength of Materials	4
Physics III	Electricity and Magnetism (classroom and laboratory work)	3
Shop III	Machine Shop (6 actual hours)	3
		21

Senior Year

FOR THE CLASSES TO GRADUATE IN 1914, 1915 AND 1916

Names of Courses	Nature of Work	Hours Per Week
	(In Civil Engineering)	
Engineering Jurisprudence	Contracts and Specifications	1
Mechanics II	Mechanism, Analytic Mechanics	5
Municipal Engineering (first semester)	Roads and Pavements, Water Supply, Disposal of Wastes	6
Thesis (second semester)		
Structural Engineering		5
Elective		2
		19
	(In Electrical Engineering)	
Electrical Engineering II	Electrical Machinery, Transmission, and Illumination; Dynamo Laboratory	7
Electrical Enginering III	Telegraph and Telephone	2
Engineering Jurisprudence	Contracts and Specifications	1
Mechanical Engineering I	Steam Engines (classroom and laboratory work)	4
Mechanics II	Mechanism, Analytic Mechanics	5
		19

Names of Courses	Nature of Work	Hours Per Week
	(In Mechanical Engineering)	
Drawing IV	Machine Design, Structural Drafting (6 actual hours)	3
Electrical Engineering IV	Dynamo Laboratory (2 actual hours)	1
Engineering Jurisprudence	Contracts and Specifications	1
Mechanical Engineering I	Steam Engines (classroom and laboratory work)	4
Mechanical Engineering II	Gas Engines, Pumps, Boilers	2
Mechanics II	Mechanism, Analytic Mechanics	5
Shop IV	Machine Shop (6 actual hours)	3
		19

DEPARTMENTS OF INSTRUCTION

CIVIL ENGINEERING

PROFESSOR THOROUGHGOOD

MAJOR WALKER

The purpose of the Department is to teach the student the theory, and the application of the principles underlying Civil Engineering; and thus fit him for immediate and profitable usefulness in the field and office work of his profession.

Instruction is given by means of assigned recitations from standard text-books, combined with laboratory, field, and drawing-room exercises, for the purpose of emphasizing the practical side of the subject.

For the field work in Surveying and Railroads, the Department is amply supplied with all the necessary field equipment, consisting of levels, transits, plane tables, rods, tapes, etc.

In the Library will be found files, as well as the current issues of all the leading Civil Engineering and allied technical periodicals. The reference library in Civil Engineering has been greatly enlarged recently by the purchase of books from a fund set aside for that purpose. It now contains works of reference in every branch of the subject.

In the Freshman year the time is given to those cultural and technical subjects which are prerequisite to the studies of the following years. The Mathematics, English, and Physics of the high school are continued; and Drawing, Descriptive Geometry, Calculus, Mechanic Arts, and Military Science taken up.

The Sophomore year marks the beginning of the study of such Civil Engineering subjects as Surveying, and Railroads. In this year the Calculus is finished; Spanish and Chemistry are begun; Military Science and Physics are finished.

Railroads, Spanish and Mathematics are continued in the Junior year. Graphic Statics, Hydraulics, Electrical En-

gineering and Municipal Engineering are added. During this year Strength of Materials, a knowledge of which is essential to all design work in bridges and buildings, is begun and completed in the Senior year.

The study of Contracts and Specifications is carried on through the Senior year. The theory and design of bridges and buildings is taken up, to the study of which five nominal hours are allotted each week. Sewerage and Concrete are studied in the second semester; and an opportunity is given to make a choice of Electives.

The courses of instruction given in the Civil Engineering Department proper are described in detail in the following paragraphs. Descriptions of those subjects in the curriculum given by other Departments may be found under their respective heads.

SURVEYING I.—Recitations on the use of the chain, compass and level, the determination of areas, and the instrumental adjustments. Field work in chaining, levelling, compass and transit surveys, and adjustments of instruments. Drawing room work in the plotting of field notes, lettering, and map drawing. (*Recitations,* 3 *hours a week; field and drawing room work,* 2 *periods a week, of* 3 *hours each. Preparation required: Mathematics* II.)

SURVEYING II.—Recitations on the use of the stadia, plane table, sextant, and tape in base line work. Field problems in the use of the stadia, plane table, and sextant; a complete stadia traverse. Plotting of stadia notes. (*Recitations,* 1 *hour a week; field and drawing room work,* 1 *period a week of* 4 *hours. Preparation required: Surveying* I.)

SURVEYING III.—Recitations and Field work. Precision levelling, city and hydrographic surveying; determinations of meridian, latitude, and time. (*Recitations,* 1 *hour a week; field work,* 1 *period a week of* 3 *hours. Preparation required: Surveying* II.)

RAILROADS I.—Recitations on the simple, compound, reversed, vertical and transition curve, and earthworks. Field problems in curve layout. Drafting room work in

the paper location of a railroad. (*Recitations,* 2 *hours a week; field and drawing room* 1 *period a week, of two hours. Preparation required: Surveying* I.)

RAILROADS II.—Field and drawing room work in the preliminary and final location of a railroad. Estimates of earthwork and cost; plotting of profiles. (*Field and drawing room,* 2 *periods a week, of* 3 *hours each. Preparation required: Railroads* I.)

GRAPHIC STATICS I.—Recitations and drawing room exercises in the computations of forces, and the plotting of diagrams in elementary graphics, and roofs. (*Recitations,* 1 *hour a week; drafting,* 1 *period a week of* 3 *hours. Preparation required: Mathematics* I *and* II.)

GRAPHIC STATICS II.—Recitations and drawing room work in the graphic analysis of girders and bridges. (*Recitations,* 1 *hour a week; drafting,* 1 *period a week of* 3 *hours. Preparation required: Graphic Statics* I.)

HYDRAULICS I.—A short general course on the principles of hydraulics with special reference to their application in engineering. The subjects considered are: Stability of dams, strength of pipes and tanks, stability of ships, flow in pipes and in open channels, impulse and resistance of fluids, measurement of pressure, velocity and discharge. (*Lectures,* 2 *hours a week; laboratory* 1 *period a week of* 2 *hours. Preparation required: Physics I and II; Mathematics* III.)

HYDRAULICS II.—The application of the principles of Hydraulics I to the solution of such engineering problems as the improvement of rivers and harbors, construction of canals, disposal of flood waters, water power development, and drainage and irrigation. (*Lectures* 2 *hours a week; laboratory,* 1 *period a week of* 2 *hours. Preparation required: Hydraulics* I.)

MUNICIPAL ENGINEERING I.—Recitations on the theory, design and maintenance of roads, streets, and pavements. (*Recitations,* 2 *hours a week. Preparation required: Railroads* II.)

MUNICIPAL ENGINEERING II.—Recitations and laboratory exercises on the theory and design of a water supply system. Drawing room computations and plotting for an actual system. (*Recitations,* 3 *hours a week; drawing room,* 1 *period a week of* 2 *hours. Preparation required: Hydraulics* I.)

MUNICIPAL ENGINEERING III.—Sewerage and sewerage disposal engineering. Design of sewerage systems. Drafting room work in the design of a system. Theory of concrete and reinforced concrete. (*Recitations* 4 *hours a week; drawing room* 2 *periods a week of* 2 *hours each. Preparation required: Municipal Engineering* II.)

CONTRACTS AND SPECIFICATIONS.—A study of the contract in its relation to the engineer. Specifications. (*Recitations,* 1 *hour a week.*)

STRUCTURAL ENGINEERING I.—Theory and computations of stresses in the various types of bridges and buildings. (*Recitations,* 3 *hours a week; designing and drafting,* 2 *periods a week of* 2 *hours each. Preparation required: Mechanics* III.)

STRUCTURAL ENGINEERING II.—Theory and design of highway and railroad bridges. Theory of cantilever and continuous bridges. Drawing room designs. (*Recitations,* 3 *hours a week; designing and drawing,* 2 *periods a week of* 2 *hours. Preparation required: Structural Engineering* I.)

ELECTRICAL ENGINEERING

PROFESSOR BENTON

MR. PERRY.

Instruction in this department is planned so as to lay equal stress on classroom work, of theoretical nature, and on laboratory work, of practical nature. For the latter, a well-equipped dynamo laboratory is provided, which is fully described on page 28.

The following courses are given:

ELECTRICAL ENGINEERING I*a*.—A short elementary

course in general Electrical Engineering. Text-book to be used in 1913-1914: Norris's Introduction to the Study of Electrical Engineering. (*One semester only; 2 recitations and 1 laboratory exercise of 2 hours per week.*)

ELECTRICAL ENGINEERING II.—Dynamo-electric machinery, alternating currents, electrical transmission of power, and electric lighting. Text-books to be used in 1913-14: Franklin and Esty's Elements of Electrical Engineering; Franklin and Esty's Dynamo Laboratory Manual. (*Required of Seniors in the Electrical Engineering course; both semesters; 4 recitations and 3 laboratory exercises of 2 hours each per week.*)

ELECTRICAL ENGINEERING III.—Telegraph and telephone engineering. Text-books to be used in 1913-14: Houston and Kennelly's The Electric Telegraph; Houston and Kennelly's The Electric Telephone. (*Required of Seniors in the Electrical Engineering course; both semesters; 1 recitation and 1 laboratory exercise of 2 hours per week.*)

ELECTRICAL ENGINEERING IV.—A brief laboratory course on electrical machinery. (*Both semesters; 1 laboratory exercise of 2 hours per week.*)

MECHANICAL ENGINEERING

PROFESSOR WEICHARDT

MR. RANELS

The instruction in this department follows theoretical and practical lines.

In the drafting room and various shops, the best practical methods are always kept in mind. System, accuracy and neatness are insisted upon everywhere. Engineering magazines and catalogues of the best machinery are accessible to the students, who are encouraged to read them.

While acquainting the student with practical methods, the aim is to produce engineers of independent thought and original power. In every possible way the student is encouraged to think for himself—to make improvements where im-

provements are possible, and thus to keep abreast with the progress of the times.

The following courses are offered:

DESCRIPTIVE GEOMETRY.—*Projections.*—This includes methods of representing points, lines, surfaces and solids in space by their projections; their intersections with each other and the careful solution of many original problems on the drawing board. (*Required of all Engineering students; both semesters; Freshman class,* 2 *hours.*)

DRAWING I.—*Elementary Mechanical Drawing.*—This comprises the use of the ordinary drawing instruments, the solution of geometrical problems, perspective drawing, isometric drawing, lettering, and some mechanical drawing from machine parts. (*Required of all Engineering students; both semesters; Freshman class;* 4 *actual hours weekly.*)

DRAWING II.—*A companion course to Descriptive Geometry.*—It includes free-hand drawings, and a further drill in making neat, accurate drawings, mechanically. The latter deals exclusively with the solution of numerous problems of the intersection of lines, planes and solids, and is taught with especial reference to developing originality in thinking and reasoning. (*Required of all Engineering students; both semesters; Freshman class;* 2 *actual hours weekly.*)

DRAWING III.—*Machine Drawing.*—The students are required to make true working drawings, showing all the necessary dimensions and the delineation of the parts to a proper scale. They are given a set of detailed drawings from which to make an assembly drawing, or vice versa. A number of tracings and blueprints are also required. (*Required of all Engineering sophomores, except the Civil Engineers who take it in the Junior Year; both semesters; Sophomore class;* 3 *actual hours, counting as* 1½ *nominal hours.*)

DRAWING IV.—*Elementary Machine Design.*—This includes the design and proportioning of such machine parts as bolts, riveted joints, keys and gibs, toothed gearing, belt transmissions, shafts, journals, bearings and rod joints.

(*Required of the Mechanical and Electrical Engineering students; both semesters; Junior year;* 6 *actual hours, counting as* 3 *nominal hours.*)

DRAWING V.—*Machine Design.*—This comprises the design of machines or the parts of machines to perform certain functions. From a set of specifications and a manufacturer's catalogue of machines, plans must be drawn up for the installation of such machines. A certain amount of structural drawing, relative to power plant installations, is also taken up. (*Required of Mechanical Engineering students; both semesters; Senior year;* 6 *actual hours counting as* 3 *nominal hours.*)

GRAPHIC STATICS III*a*.—*Graphic Statics of Machinery.*—This course includes the graphic determination of the forces actuating machinery and the mechanical efficiency of several machines and machine parts. It takes into account the effect of friction of pins, sliding pieces, screws, chains, ropes, and similar pieces. (*Required of Electrical and Mechanical Engineers; Senior year; first semester;* 4 *actual hours weekly; prerequisite, Graphic Statics* I.)

MECHANICAL ENGINEERING I.—*Steam Engine.*—This includes a study of the steam engine and the laws of thermodynamics; the indicator card; and the losses involved in the conversion of one form of energy into another. (*Required of Mechanical and Electrical Engineering students; both semesters; Senior year;* 3 *hours of class-work and* 2 *actual hours of laboratory or other assigned work weekly.*)

MECHANICAL ENGINEERING II.—*Valve Gears.*—This course consists of the graphical study of the different types of steam engine valve gears by means of the Zeuner and other diagrams; valve setting, and steam distribution obtained by the usual types. (*Required of Mechanical Engineering students; Senior year;* 2 *actual hours.*)

MECHANICAL ENGINEERING III*b*.—*Gas Engines.*—This includes a study of the modern internal combustion engine, gas producers, and the utilization of liquid fuels in same.

(*Required of Mechanical Engineering students; second semester; Senior year;* 3 *hours weekly.*)

MECHANICS I.—*Mechanism, or the Kinematics of Machinery.*—This includes an investigation of link work, construction of gears and cams, belt and pulley drive, trains of mechanism, the velocity ratio and directional relation of the moving parts of various machines, etc. The text is supplemented by drawing exercises in the construction of gear teeth, cams, and motion diagrams. (*Required of all Electrical and Mechanical Engineering students; both semesters; Sophomore year;* 4 *actual hours.*)

MECHANICS IIa.—*Analytic and Applied Mechanics.*—This comprises a study of the laws of force, friction, equilibrium of fluid pressure, inertia, centrifugal force, kinetic and potential energy, etc. Problems are also assigned, illustrating the practical application of these laws to cranes, derricks, pumps, boilers, engines, dynamos and other machinery. (*Required of all Engineering students; first semester; Junior year;* 4 *hours.*)

MECHANICS IIIb.—*Strength of Materials used in the Construction of Machinery and Engineering Structures.*—This comprises an investigation of the strength of machines, boilers, and engineering structures; an analysis of the stresses in bridges, roof trusses, and machinery; and a study of the mechanical properties of iron, steel, timber, cement, and other materials. The text is supplemented by laboratory tests on specimens of the various materials. (*Required of all Engineering students; second semester; Junior year;* 4 *hours.*)

MECHANICS IV.—*Analytic and Applied Mechanics.* A continuation of Mechanics II. (*Required of all Engineering students; second semester; Senior year;* 5 *hours.*)

MECHANIC ARTS

PROFESSOR WIECHARDT

MR._____

MECHANIC ARTS.—An all important feature in engineering is the shop work. The student must not only know *about* things, but also how to *do* them. His value to the world lies

in the fact that he can take off his coat and do things. Such a man who knows the why and wherefore, and then can *do,* is the man the industrial world needs. The work is not merely manual training, but includes the actual making of tools and machinery of various designs. System, accuracy and neatness are insisted upon. The shops are furnished with electrical power, so that any of the machinery is ready for instant use.

MECHANIC ARTS I.—*Wood Work.*—First is given an elementary course in laying out work, and in the use of the ordinary hand tools, such as saws, chisels and planes. The student is next taught the use of the turning lathe, turning by himself a series of patterns; then he is taught the care and use of wood-working machinery, such as the rip-saw, cut-off saw, band-saw, and planer. (*Required of all Engineering students; first semester; Freshman year,* 6 *actual hours counting as* 3 *nominal hours.*)

MECHANIC ARTS II*b.*—*Elementary Wood Carving and Furniture Construction.*—Herein is applied the skill, knowledge, and experience obtained in the first semester's work, and each student will be required to design and construct a piece of furniture, or other approved article involving carving, turning or joinery as a passing piece. (*Required of all Engineering students; second semester; Freshman class;* 6 *actual hours weekly.*)

MECHANIC ARTS III*a.*—*Forge Shop.*—Practice work is first given so as to develop proficiency in the use of the hammer. The student then makes articles of intrinsic value, such as foundry tools, hammers, cold chisels, lathe tools, turning chisels, drawknives, and screw-drivers. He acquires skill in forging, welding, dressing, tempering and annealing. (*Required of all Electrical and Mechanical Engineering students; first semester; Sophomore year;* 6 *actual hours weekly.*)

MECHANIC ARTS IV*b.*—*Foundry Practice.*—Foundry practice will be given in the second semester, by text-book, or lectures. (*Required of all except Civil Engineering stu-*

dents; second semester; Sophomore year; 3 *actual hours counting as* 1½ *nominal hours.*)

MECHANIC ARTS V.—A course of Lectures in Mechanical Technology, to accompany Mechanic Arts courses III and IV. (*Required of Electrical and Mechanical Sophomores.*)

MECHANIC ARTS VI*a*.—*Patternmaking.*—Prerequisites are: The Mechanic Arts courses I., II., and IV. This course includes instruction in glueing up work, finishing smoothly with the necessary draft, allowing for shrinkage, and similar details of the patternmaker's craft. It is taught by the student making small patterns and core boxes from a system of carefully arranged and progressive exercises. These will be followed by the construction of patterns for such small machines as are designed in the drafting room for construction in the shops, at least as far as the development of the work will permit. (*Required of the Mechanical and Electrical Engineering students; first semester; Junior class;* 6 *actual hours.*)

MECHANIC ARTS VII.—*Machine Shop.*—The student is thoroughly drilled in the practical. Simple tasks in turning, boring, grinding, planing and milling are first given, followed by the more difficult duties. (*Required of Mechanical and Electrical Engineering students; second semester; Junior year;* 6 *actual hours, counting as* 3 *nominal hours.*)

MECHANIC ARTS VIII.—*Machine Shop.*—This is a continuation of the shop work of the previous year. It consists of the more intricate and difficult tasks. All of this work is on actual machinery or parts thereof, and is of intrinsic value. (*Required of Mechanical Engineering students; Senior year;* 6 *actual hours counting as* 3 *nominal hours.*)

MECHANIC ARTS XI.—*Construction and Operation of Machine Tools.*—The student will receive a brief course in technical sketching, preparatory to this work; he will then visit the college shops where he will make a detailed examination of the various machine tools under the personal supervision of the instructor. The required work will include a neatly written report with fully dimensioned sketches of the

different machines, and machine parts; together with calculations and comparisons of cutting speeds best adapted to various materials; and also belt and pulley speeds, with estimates of power required for different machine tools.

In the second semester these visits of inspection will be extended to the neighboring manufacturing plants, with the special object of observing the practical processes of handling work in the different shops and on different tools, all of which is to be incorporated into a report fully illustrated with numerous sketches showing the details of the pieces and processes inspected.

A number of original problems will be assigned to the student and so arranged as to afford him an opportunity of demonstrating his knowledge of how to handle any ordinary piece of work in its passage through the manufacturing process. (*Required of all Freshmen in the Mechanic Arts Course; 3 hours weekly.*)

MECHANIC ARTS XII.—*Forge and Foundry Practice.*—This is a continuation of Mechanic Arts Course II. and III., intended to give the student additional skill and practice in these crafts. (*Required of Mechanic Arts students; both semesters; Sophomore year; 3 actual hours weekly.*)

MECHANIC ARTS XIII.—*Use and Care of Hand Tools.*—This will include the selection, care and use of the usual small hand tools commonly used in the wood and iron working crafts. (*Required of Mechanic Arts Juniors; both semesters; 1 lecture weekly.*)

MECHANIC ARTS XIV.—*Instruction Practice.*—In order to afford the student the opportunity to gain confidence in himself, and also to become more skillful in his work he will be required to take charge of a certain number of Freshmen in the Mechanic Arts courses I. and II., under the direction and supervision of the instructor. (*Required of Mechanic Arts students; Junior year; 3 actual hours weekly.*)

MECHANIC ARTS XV.—*Manual Training.*—This will include a study of manual training courses, estimated costs of equipment, design of the different courses of instruction and their adaptability to different places. It will also include

a general review of all previous work of the immediately preceding courses. (*Required of Mechanic Arts students; both semesters; Senior year;* 1 *hour weekly.*)

MECHANIC ARTS XVI.—*Instruction Practice.*—This is a continuation of Mechanic Arts course XIV., but applied to The Mechanic Arts courses III. and IV. (*Required of Mechanic Arts Seniors; both semesters;* 3 *actual hours weekly.*)

OTHER DEPARTMENTS

In order to avoid repetition, detailed descriptions of the required and elective subjects in other departments of the College of Engineering are not printed here. The courses in Chemistry, English, Mathematics, Military Science and Tactics, Modern Languages, and Physics, are outlined in the section of the Catalogue devoted to the College of Arts and Sciences.

SHORT COURSE IN MECHANIC ARTS

A. J. WIECHARDT, M.E., M.M.E., DIRECTOR

This course is designed for students who desire to attain proficiency in drafting, machine design, and shop practice, without pursuing a regular course in engineering. It does not lead to any degree. The studies shown in the following table are required:

First Year

Names of Courses	Nature of Work	*Hours Per Week	Description, See Page
Drawing I	Mechanical Drawing	2-2	160
Drawing III	Mechanical Drawing to Scale (3 actual hours)	3-3	160
English I	Composition and Rhetoric	3-3	79
Mathematics A and B	Solid Geometry, Plane and Spherical Trigonometry	4-4	89
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1-1	91
Mechanic Arts	16 actual hours	8-8	163
		21-21	

Second Year

Chemistry I	Inorganic Chemistry	3-3	77
Drawing IV	Machine Design (6 actual hours)	3-3	160
Mechanics I	Mechanism (4)	2-2	162
Mathematics I	Higher Algebra, Analytic Geometry	3-3	89
Military Science II	Field Service Regulations, Manual of Guard Duty	1-1	91
Physics I	Mechanics, Heat, Acoustics, Optics	3-3	96
Physics II	Laboratory Work to Accompany Physics I (4 actual hours)	2-2	97
Mechanic Arts	12 actual hours	6-6	163
		23-23	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour. First column, number of hours in first semester; second column, number in second semester.

COLLEGE OF LAW

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

THOS. W. HUGHES, LL.M.,
Dean and Professor of Law.

HARRY R. TRUSLER, A.M., LL.B.,
Professor of Law.

EDMUND C. DICKINSON, A.B., J.D.,
Professor of Law.

SPECIAL LECTURERS

1913-1914

JUSTICE THOS. M. SHACKLEFORD, LL.D.,
CHIEF JUSTICE JAMES B. WHITFIELD,
JUSTICE R. F. TAYLOR,
JUSTICE W. A. HOCKER,
JUSTICE R. S. COCKRELL,
All of the Supreme Court of Florida.

HON. DUNCAN U. FLETCHER,
HON. N. P. BRYAN,
Both of the U. S. Senate.

HON. W. B. SHEPPARD,
U. S. Dist. Judge.

HON. J. T. WILLS,
Circuit Court Judge.

HON. FRED C. CUBBERLY,
U. S. District Attorney.

HON. THOS. W. FIELDING,
Referee in Bankruptcy.

HON. ROBT. E. DAVIS,
City Attorney, Gainesville.

PROF. HARVEY W. COX, Ph. D.,
University of Florida.

GENERAL STATEMENT

In 1891, the American Bar Association declared that in its opinion it was a part of the highest duty and interest of every civilized State to make provision, when necessary, for maintaining schools of law and the thorough legal education of all who are licensed to practice law. Feeling with its full force the soundness of this doctrine and being moved by a desire to discharge this duty on the part of the State, the State Board of Education and the Board of Control provided for the opening of the College of Law in the University of Florida in September, 1909. The advantages to accrue to the State from having a thorough and systematic course of instruction in the common law, with special consideration of the peculiarities and exceptions applicable in Florida, as a part of its educational system, are many and evident.

It was the purpose of the Board of Control to establish in the University of Florida a law school which, by the quality of its work and the character of its equipment, would merit and command the confidence and support of the bench and bar of the State and would draw within its walls the young men who will constitute the future bar of Florida. That the hopes of accomplishing these results were well founded and that gratifying progress towards these ends has been made, are shown by the number and character of those who have availed themselves of the advantages offered by the College of Law.

REQUIREMENTS FOR ADMISSION

Graduates and matriculates of colleges and universities and applicants who have completed a high school course of four years will, upon presentation of proper credentials to that effect, be admitted to the College of Law without examination as to preliminary education, as candidates for a degree. Other applicants, if candidates for a degree, must show by written examination, or by certificate of the superintendent or principal of the institution where they took the work, that they have satisfactorily completed three years of

high school work, one-fourth of which must be work in English.

Notice is hereby given that with the opening of the session of 1914 a high school course of four years will be required.

SPECIAL STUDENTS

Persons over 20 years of age who are not able to qualify as regular students may be admitted as "Special Students" upon presenting satisfactory evidence that they have received such training as will enable them to make profitable use of the opportunities offered in the College of Law. If the entrance conditions are removed not later than the opening of the first semester of the Senior year, such students may, by special vote of the Faculty, become regular students and candidates for a degree.

ADVANCED STANDING

Attorneys at law who have been admitted to practice in the courts of this State and who comply with the above entrance requirements will be admitted to the Senior class without examination.

No work in law done in other institutions will be accepted towards a degree, unless the applicant passes satisfactorily the examinations held in the subjects in the Junior year of this department, or unless, by special vote of the Law Faculty, credit is given towards Senior standing without examination for such work. In no case will credit be given in this way for work not done in residence at an approved law school.

COURSE OF INSTRUCTION

The course of instruction in the College of Law extends through two years of thirty-five weeks each, exclusive of vacations. The academic year is divided into two semesters, the first having eighteen weeks and the second seventeen.

The purpose of the College of Law is to educate its students by the study of jurisprudence and to acquaint them with the foundation principles of the common law at the same time. "The ability to think clearly, to reason closely,

to appreciate distinctions quickly, to investigate thoroughly, to generalize accurately and to state his conclusions tersely, are prime requisites of the safe counselor." To secure for the student this power should be the constant effort of both student and faculty.

The method of instruction in the College of Law has been planned with these ends in view. This is largely by the use of text-books and selected cases. Each case is carefully studied by the student and in the class room he is required to analyze it, giving in his own language a clear and concise statement of the essential facts, the issues involved in the case, the law governing it and the reasoning of the court for the conclusion reached. This practice tends "to greater thoroughness in reading, greater care in reasoning and greater accuracy on the part of the student in the art of expression."

In connection with this case work, the student studies a well-written text-book on the subject under consideration. This gives him a systematic summary of the same, more detailed information concerning the application of the law in particular instances and an outline of the exceptions to and limitations upon the general principles considered in the cases.

Particular stress is placed on the statutory modifications of the common law in Florida. This is true in every subject in the curriculum; but it is especially emphasized in Pleading, Practice and Evidence, as the course of study is designed to instruct the student thoroughly in the peculiarities of substantive law and procedure in Florida, so that he will be able to enter upon the practice understandingly at once.

With these ends in view, the following course of study has been prepared:

FIRST YEAR

FIRST SEMESTER

CONTRACTS.—The nature of contract; offer and acceptance; form and consideration; capacity of parties; reality of consent; legality of object; operation of contract. Text-books: Willis on Contracts and Huffcut and Woodruff's Cases on Contracts. (5 *hours a week. Dean Hughes.*)

ELEMENTARY LAW AND ELEMENTARY REAL PROPERTY.—Study of the elementary principles of the law as given in Books I, II and III of first edition of Robinson's Elementary Law and the first six chapters of Hopkins on Real Property. (4 *hours a week. Professor Dickinson.*)

DOMESTIC RELATIONS.—This course considers thoroughly the law of husband and wife, parent and child, guardian and ward, infants, persons *non compos mentis* and aliens. Textbooks: Long's Domestic Relations and the Statutes of Florida. (2 *hours a week. Professor Dickinson.*)

TORTS.—History and definitions; elements of torts; conflicting rights; mental anguish; parties to tort actions; remedies; damages; conflict of laws; method of discharge. Text-books: Burdick on Torts and Burdick's Cases on Torts. (3 *hours a week. Professor Trusler.*)

BRIEF MAKING AND THE USE OF LAW BOOKS.—Where to find the law; how to use statutes and decisions; how to find the law; the trial brief; the brief on appeal and its preparation. Text-books: Brief Making and the Use of Law Books. (1 *hour a week. Dean Hughes.*)

SECOND SEMESTER

SALES OF PERSONAL PROPERTY.—Sale and contract to sell; statute of frauds; illegality; conditions and warranties; delivery; acceptance and receipt; vendor's lien; stoppage in transitu; bills of lading; remedies of seller and buyer. Text-book: Tiffany on Sales. (1 *hour a week. Professor Trusler.*)

TORTS.—Exhaustive study of particular torts, including among others, false imprisonment; malicious prosecution and abuse of process; conspiracy; slander and libel; trespass; conversion; deceit; nuisance; negligence. Text-books: Burdick on Torts and Burdick's Cases on Torts. (2 *hours a week. Professor Trusler.*)

AGENCY.—Definitions and divisions; purposes for which the relation may be created and how; who may be principal or agent and evidence of the existence of the relation; ratification; delegation of authority by agent; termination, nature and extent, construction and execution of the authority; rights, duties and liabilities of agent, principal and

third persons, the one to the other; particular classes of agents. Text-books: Mechem's Outlines of Agency and Mechem's Cases on Agency. (2 *hours a week. Professor Dickinson.*)

COMMON LAW PLEADING.—Definition and classification of actions; proceedings in an action; analysis of the declaration; Stephen's Rules of Pleading. Text-books: Shipman's Common Law Pleading, the Statutes of Florida and the Supreme and Circuit Court Rules in Common Law Actions in Florida. (3 *hours a week. Dean Hughes.*)

EQUITY JURISPRUDENCE I.—History and Definition; jurisdiction; general maxims; equitable estates, interests and primary rights, including a study of trusts, the powers, duties and liabilities of trustees; mortgages; equitable liens; assignments. Text-books: Eaton on Equity and Selected Cases. (2 *hours a week. Professor Trusler.*)

REAL PROPERTY II.—Text-books: Hopkins on Real Property and the Statutes of Florida. (2 *hours a week. Professor Dickinson.*)

CRIMINAL PROCEDURE.—Jurisdiction and venue; arrests, searches and seizures; extradition; preliminary examination, bail and commitment; modes of accusation; the form of accusation; pleading; proof; variance; verdict and judgment; proceedings after verdict; evidence; habeas corpus. Text-books: Beale's Criminal Procedure and the Statutes of Florida. (1 *hour a week. Dean Hughes.*)

CRIMINAL LAW.—Nature of crime; common-law and statutory offenses; mental element in crime; insanity, intoxication, infancy, coercion, ignorance and mistake as bearing on exemption from criminal liability; necessity; justification; agency; consent; condonation; contributory acts; principals; accessories; classification and study of specific crimes; former jeopardy; State and Federal jurisdiction. Text-books: Hughes on Criminal Law and the Statutes of Florida. (2 *hours a week. Dean Hughes.*)

SECOND YEAR.

FIRST SEMESTER

EQUITY PLEADING.—Nature and object of pleadings in equity; parties to a suit in equity; proceedings in a suit in equity; bills in equity; the disclaimer; demurrers and pleas in equity; replication and answers in an equitable suit. Text-books: Shipman's Equity Pleading, Rules of the Circuit Court in Chancery in Florida and the Statutes of Florida. (2 *hours a week. Professor Trusler.*)

EVIDENCE.—Rules as to admission and exclusion of evidence; judicial notice; parole evidence rule; burden of proof and the right to open and close; competency and examination of witnesses; production of documents, persons and things; direct examination, cross examination and redirect examination. Text-books: Hughes on Evidence, Throckmorton's Cases on Evidence and the Statutes of Florida. (3 *hours a week. Dean Hughes.*)

BAILMENTS AND CARRIERS.—Nature and classification of bailments; rights and liabilities of the parties; innkeepers, carriers of goods as to liability, discrimination, compensation, lien; Carriers of passengers as to duty to accept, accommodations, ticket, ejection, personal injuries; actions against carriers. Text-books: Goddard's Outlines of Bailments and Carriers and Goddard's Cases on Bailments and Carriers. (2 *hours a week. Professor Dickinson.*)

NEGOTIABLE INSTRUMENTS.—Law Merchant; definitions and general doctrines; contract of the maker, acceptor, certifier; drawer; indorser, vendor, accommodater, assurer; proceedings before and after dishonor of negotiable instruments; absolute defenses; equities; payments; conflict of laws. Text-books: Bigelow on Bills, Notes and Cheques, the Negotiable Instrument Act of Florida, and selected cases. (2 *hours a week. Professor Dickinson.*)

EQUITY JURISPRUDENCE II.—Accident, mistake and fraud; penalties and forfeitures; priorities and notice; bona fide purchasers; estoppel; election; satisfaction and performance; conversion; specific performance; injunction; reformation; cancellation; cloud on title; ancillary reme-

dies. Text-books: Eaton on Equity and selected cases. (2 *hours a week. Professor Trusler.*)

ORGANIZATION OF AND PROCEEDINGS IN THE COURTS OF FLORIDA IN CIVIL ACTIONS.—

a. *In General.*—Disqualification, resignation, and removal of judges; judge's power in vacation; judge ad litem; parties to suits at law; locality and consolidation of actions; joinder of causes of action; rule days; commencement of suits at common law; appearances, defaults and judgments upon default; pleadings at law; witnesses and evidence; jurors; judgments and executions; motion for new trial and in arrest of judgment; lis pendens; appellate proceedings at law and in probate matters; limitation of actions.

b. *Supreme Court.*—Statutory powers; members of the court; its terms, record, clerk, seal, decisions and reports.

c. *Circuit Court.*—Statutory powers and duties of judges; terms; records and dockets to be kept by the clerk; seal and records.

d. *Circuit Court in Chancery.*—Its power in vacation; locality of action; process, its service and return; bill, demurrer, plea and answer; practice and evidence; masters in chancery; decrees; rehearings and appeals; injunctions; ne exeat; divorce and alimony; partition of property; quieting titles; disability of minors and married women; liens.

e. *Statutory Jurisdiction of Circuit Court.*—Ejectment; re-establishing lost papers; adoption of children; eminent domain; court commissioners.

f. *County Court.*—Jurisdiction; terms; clerk; seal; records; appeals; rules of practice.

g. *County Judge's Court.*—General powers; bonds; clerk; seal; probate powers; as justice of the peace; forcible entry and detainer.

h. *Courts of Justices of the Peace.*—General provisions; jurisdiction; proceedings before, at and after trial; proceedings on appeal.

i. *Special Statutory Proceedings at Law.*—Attachment; garnishment; forcible entry and detainer; replevin; statutory liens; landlord and tenant.

j. *Extraordinary Legal Remedies.*—Habeas corpus; quo warranto; prohibition.

Text-books: Shipman's Common Law and Equity Pleading, General Statutes of Florida, decisions of Florida Supreme Court and the Common Law and Equity Rules of Practice of the Circuit and Supreme Courts of Florida. (2 *hours a week throughout the year. Dean Hughes, Professor Trusler and Professor Dickinson.*)

THE UNIVERSITY PRACTICE COURT.—One hour a week throughout the year. (*Dean Huges, Professor Trusler and Professor Dickinson.*)

FLORIDA CONSTITUTIONAL LAW.—Declaration of rights; legislative, executive and judicial departments of government; suffrage and eligibility; census and apportionment; counties and cities; taxation and finance; homestead and exemptions; married women's property; education; public institutions; miscellaneous provisions. Text-books: The Constitution, Statutes and Judicial Decisions of Florida. (1 *hour a week. Professor Trusler.*)

JURISDICTION OF THE UNITED STATES COURT.—Under the federal constitution; jurisdiction of different federal courts; ancillary and appellate jurisdiction; bankruptcy; admiralty suits; federal questions; removal from state to federal courts, habeas corpus. Text-books: Hopkin's Judicial Code and selected cases. (1 *hour a week. Professor Trusler.*)

BROOM'S LEGAL MAXIMS.—A reading course running throughout the year. (*Dean Hughes.*)

SECOND SEMESTER

UNITED STATES CONSTITUTIONAL LAW.—General principles; distribution of governmental powers; congress; the chief executive; the judiciary; police powers; eminent domain; checks and balances; guarantee of republican government, civil rights; political privileges; guarantees in criminal cases; impairment of contractual obligations; municipal corporations. Text-books: Cooley's Principles of Constitutional Law and Cooley's Constitutional Limitations. (2 *hours a week. Professor Trusler.*)

WILLS.—Definition, nature and kinds of wills; a devisable estate; who may make a will; error, fraud, undue influence and mistake; who may take by will; formal requisites of wills; revocation; re-publication; by what law wills are governed; construction and effect of wills; lapse and substitution; rights and liabilities of devisees and legatees; descent and distribution. Text-books: Rood on Wills and the Statutes of Florida. (2 *hours a week. Professor Dickinson.*)

LEGAL ETHICS.—A consideration of the profession of the law in its relation to society, embracing the duties the lawyer owes to the commonwealth, to the court, to his professional brethren, and to his clients. Text-books: Warvelle's Legal Ethics and the Code of Ethics adopted by the American Bar Association. (1 *hour a week. Dean Hughes.*)

EXECUTORS AND ADMINISTRATORS.—When necessary; appointment and qualification; acceptance or renunciation; foreign and interstate administration; powers, duties and liabilities of executors and administrators; inventory; assets of estate; insolvent estates; distribution; accounting and allowances. Text-books: Croswell's Executors and Administrators and the Statutes of Florida. (2 *hours a week. Professor Trusler.*)

DAMAGES.—General principles; nominal, compensatory, exemplary, and liquidated damages; interest; value; pleading and practice; breach of contracts for sale of goods; actions against carriers; death by wrongful act; wrongs affecting real property; damages in tort action; breach of marriage promise. Text-book: Cases on Damages, selected from the Florida Reports. (1 *hour a week. Professor Trusler.*)

PARTNERSHIP.—Definitions and classifications; what constitutes a partnership; contract of partnership; firm name and good will; capital of firm; partnership property; rights and liabilities of partners among themselves and as to third persons; actions; dissolutions; limited partnerships. Text-book: Shumaker on Partnership, and selected cases. (1 *hour a week. Dean Hughes.*)

PRIVATE CORPORATIONS.—Nature of a corporation; crea-

tion and citizenship of corporations; defectively organized corporations; promoters and corporations; powers and liabilities of corporations; corporation and the State; dissolution of corporations; membership in corporations; management of corporations; creditors, their rights and remedies; foreign corporations. Text-books: Elliott on Corporations and the Statutes of Florida. (3 *hours a week. Dean Hughes.*)

EXAMINATIONS

The last week of each semester is devoted to examinations covering the work of the semester. These examinations are in writing and are rigid and searching, but ARE NOT NECESSARILY FINAL. To be considered, prima facie, to have satisfactorily completed a subject, the student must obtain a grade of at least 75 per cent. During the last week of the second year any candidate for a degree may be required to pass an examination in any or all subjects given in the course and attain a minimum average grade of 75 per cent in all subjects in order to be recommended for a degree.

THE UNIVERSITY PRACTICE COURTS

Thoroughly organized practice courts are regular features of the course of instruction in the second year. Weekly sessions of the courts are held, over which the Judges of the Practice Court preside. The object of the course in the Practice Court is to give the student practical instruction in pleading and practice at law and in equity and experience in the preparation and trial of cases. The work is arranged as follows:

First—Cases arising upon prepared statements of fact are assigned to the second year students, upon which they are to determine what proceedings to bring and how to bring them, issue, serve and return process, prepare the pleadings and bring the case to an issue on a question of law. Each student must take part in at least one case at law and one in equity. The case is first heard on the sufficiency of the form and the structure of the pleadings, and when these are approved the issue of law is argued and decided, the students acting as attorneys on each side drawing the

order, judgment or decree they deem themselves entitled to.

Second.—In the second class of cases in the Practice Court actual controversies are arranged and assigned for trial in the Circuit Court as issues of fact. After determining what action to bring, the students assigned to the case are required to issue the proper process and prepare and file the necessary pleadings, subpoena the witnesses, select the jury, examine and cross-examine the witnesses and argue the case to the jury. Each student is required to participate in the trial of at least one civil and one criminal case and must take part in carrying one chancery, one civil and one criminal case to the Supreme Court for review.

The work of the Practice Court in Criminal Pleading and Procedure is conducted by Dean Hughes; that in Equity Pleading and Procedure by Professor Trusler; and that in Common Law Pleading and Procedure by Professor Dickinson.

THE LAW LIBRARY

Law books are the working tools of the practicing lawyer. To teach the student how to use these tools, how to use the digests, encyclopedias and reports, is as much the work of the law school as to teach him the general principles of the law.

The College of Law was fortunate in being able to open its doors with a good working library and now has on its shelves the following books: Three sets of the Florida Supreme Court Reports, with digest; The Session Laws of Florida from 1822 to 1911, except from 1828 to 1834; McClellan's Digest and Duval's Compilation of the Laws of Florida; Revised Statutes of 1892 and the General Statutes of 1906; The Northwestern, Southwestern, Northeastern, Southeastern, Atlantic, Pacific, and Southern Reporters; The American Decisions, American Reports and American State Reports, with digests; The Lawyers' Reports Annotated, with digests; The United States Supreme Court Reports, with digests; The New York Common Law and Chancery Reports, with digests; The New York Court of Appeals Reports, the Reports of the Supreme Courts of Michigan

and Massachusetts and the New Jersey Equity Reports to the Reporters; The Reprint of the English Reports, the Encyclopedia of Law and Procedure and more than two hundred of the leading text-books and books of reference. The Legislature of 1911 appropriated one thousand dollars for the purchase of new books, and recently this money was expended in buying the Alabama State Reports, The Illinois State Reports, The New Jersey Law State Reports, the Decennial and many text-books.

THE MARSHALL DEBATING SOCIETY

It is important that those who study law and intend to engage in its practice should give attention to the subject of public speaking. To suppose that excellence in public speaking and debating is a gift of nature only and not the result of patient and persistent effort, is a mistake. Believing in the truth of these statements, the students in the College of Law met early the first year and organized a society that would secure to its members practice in debating and public speaking and experience in arguing legal questions, as well as drill in parliamentary law. The society was fittingly named "The Marshall Debating Society," in honor of the memory of the distinguished Southern jurist, John Marshall. The membership and work in the society are limited to students in the College of Law, but the Faculty give all possible assistance and encouragement to the work.

UNIVERSITY PRIVILEGES

The advantages of the other departments of the University are open to such students in the College of Law as desire and are able to accept them. Courses in Constitutional and Political History, International Law, Political Economy, Logic, Rhetoric and English Composition are particularly recommended to law students. No extra charge will be made for such courses, but students in the College of Law will be permitted to take them only with the consent of the Law Faculty and of the professors whose courses they wish to take.

DEGREE

The degree of Bachelor of Laws (LL.B.) is conferred upon those students who satisfactorily complete the course of study as previously described. Students admitted to advanced standing may, if they do satisfactorily the work as prescribed by the rules of the department, receive the degree after one year's residence, but in no case will the degree be granted unless the candidate is in actual residence during all of the second year.

ADMISSION TO THE BAR

The graduates of the College of Law are licensed by the Supreme Court, without examination, to practice in all the Courts of Florida upon presenting their diplomas, duly issued by the proper authorities and upon furnishing satisfactory evidence that they are twenty-one years of age and of good moral character.

Books.—The text-books used in the College of Law will, in most cases, be found in the law library, but it will be necessary for students to provide themselves with books for their daily use. Nearly all of the books are standard texts and will form a nucleus of the student's future library.

TEACHERS' COLLEGE AND NORMAL SCHOOL

FACULTY

ALBERT A. MURPHREE, A.M., L.L.D.,
President.

JOHN A. THACKSTON, Pd.M., Ph.D.,
Dean, Professor of Education, and High School Inspector.

HARVEY W. COX, A.M., Ph.D.,
Professor of Psychology and Education.

GEO. M. LYNCH, A.B.,
Professor of Elementary Education and Inspector of Rural Schools.

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Assistant Professor of Psychology and Education.

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Instructor in Education.

JAS. M. FARR, A.M., Ph.D.,
Professor of English Language and Literature.

EDWARD R. FLINT, Ph.D., M.D.,
Professor of Chemistry.

J. R. BENTON, A.B., Ph.D.,
Professor of Physics.

C. L. CROW, M.A., Ph.D.,
Professor of Modern Languages.

JAS. N. ANDERSON, M.A., Ph.D.,
Professor of Ancient Languages.

H. S. DAVIS, Ph.D.,
Professor of Zoology and Bacteriology.

J. J. VERNON, B.Agr., M.S.A.,
Professor of Agriculture.

H. G. KEPPEL, A.B., Ph.D.,
Professor of Mathematics.

A. J. WEICHARDT, M.E., M.M.E.,
Professor of Mechanical Engineering and Drawing.

W. L. FLOYD, M.S.,
Professor of Horticulture.

L. L. BERNARD, A.B., Ph.D.,
Professor of History and Economics.

C. L. WILLOUGHBY, B.Agr.,
Professor of Animal Husbandry and Dairying.

*----------
Assistant Professor of Botany and Bacteriology.

M. B. HADLEY, A.B.,
Instructor in History.

W. S. PERRY, A.B.,
Instructor in Physics.

P. C. O'HAVER, A.B.,
Fellow Assistant in English and Mathematics.

M. L. NEAL, A.B.,
Fellow Assistant in Latin.

B. G. LANGSTON, A.B.,
Student Assistant in Latin.

R. S. BLANTON, L.I.,
Student Assistant in Mathematics.

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Instructor in Practice High School.

*----------
Instructor in Practice High School.

GENERAL STATEMENT

It is the purpose of the Teachers' College and Normal School to prepare teachers for the public schools of Florida. It aims to give that training that will properly fit men to teach in and become principals of grammar and high schools, to be supervisors, county and city superintendents; to give that information, insight and appreciation of our educational problems and principles that each intelligent citizen of every community should possess, and to prepare teachers in the Review Courses for the County and State

*To be elected.

certificates. This college is the professional school for teachers in the University and aims to bend every effort toward giving the State a supply of trained teachers.

PEABODY HALL.—The new Peabody Hall, the home of this college, is a magnificent, three-story brick and stone structure. It is modern in every respect as to equipment and arrangements. It contains all the lecture rooms, society halls, reading rooms, laboratories and libraries that a modern college of this kind needs. With such facilities at its command nothing can hinder the college from realizing its aims.

LIBRARY.—The pedagogical library receives many of the best educational journals and is supplied with the standard books on educational theory, general and special methods, the history of education, psychology and philosophy. Additions will be made to these during the coming fall.

PSYCHOLOGICAL LABORATORY.—The new Psychological Laboratory is placed in the Peabody Hall. This will give teachers a wonderful opportunity to investigate at first hand the great laws of the mind. To know these through experiment will give the teacher a far greater power to direct properly their development in the child. The laboratory will contain all of the appliances and apparatus necessary for thorough and efficient work in experimental psychology.

THE PEABODY CLUB.—This club is an organization of the teachers of this college. It meets once a week and discusses educational problems. The new building will provide a special hall for it, and then the good work that has been carried on by this club will be better even than formerly. Every teacher in this college is expected to become a member of it and lend his best efforts toward making it a greater success. No part of the college work is more important than this.

ADMISSION.—The admission to this college is the same as for the College of Arts and Sciences. For this see pages 46 to 56. No special entrance requirements will be made for those who desire to take the Normal and Review Courses.

All those who can profit by taking these courses may enter and take up those studies best suited to their need.

NORMAL AND REVIEW COURSES.—Besides the following curricula, which lead to two degrees, Normal and Review Courses are offered. These courses are for the purpose of preparing teachers for the rural and village schools and the grammar school work in general. They also give opportunity to teachers to prepare themselves for the county and State certificates. These courses will include a thorough review of all the elementary and grammar school subjects, with a view to teaching them. A thorough mastery of the subject matter will be insisted upon, and then methods for the presenting of these subjects will be given. The elementary principles of teaching and psychology will also be included. In fact, these courses will attempt to qualify thoroughly teachers for the work in the elementary and grammar grades. Students may enter these Normal and Review Courses at any time during the year. The spring Review Courses will continue as usual.

CURRICULA AND DEGREES.—Two curricula are offered, each requiring four years. One leads to the degree of Bachelor of Arts in Education; the other leads to the degree of Bachelor of Science in Education.

TEACHERS' EMPLOYMENT BUREAU.—It is the purpose of this Bureau to keep records of all teachers who have attended the University who are fitted by their training for the profession of teaching and to recommend them to school boards who are in need of efficient principals and teachers. Already the demand for our graduates and students is greater than the college can supply. County superintendents and school boards are requested to correspond with us when in need of well-trained and efficient teachers.

ELECTIVES.—That graduates may be well prepared to teach two or three of the high school subjects, nine hours of electives are offered in both curricula in the junior and senior years, respectively. In choosing these electives the student is required to elect those special studies which he prefers to teach and to make himself especially proficient in them by pursuing them two consecutive years. All elec-

tives must be chosen after consultation with the Dean. For the A.B. degree the major elective work must be chosen in Groups II and III, or Groups II or III. For the B.S. degree the major electives must be chosen from Group IV.

The foreign language chosen in the Freshman year must be pursued through the Sophomore year.

CORRESPONDENCE COURSES FOR TEACHERS.—The Teachers' College is now preparing courses in Education which may be taken by teachers by correspondence. These courses will outline work in School Management, General and Special Methods of Teaching the different elementary and grammar school subjects, Psychology, History of Education and other similar subjects. Besides these, it is planned to offer correspondence courses in some of the regular academic subjects. Reading courses will also be suggested, for the completion of which certificates will be given. All of these courses should appeal to teachers who are ambitious to advance their knowledge along special lines and who are not able to quit their work to attend school or college.

For full particulars concerning this correspondence work address Dean Jno. A. Thackston.

These courses are open to all white teachers.

CURRICULUM

Leading to the Degrees of Bachelor of Arts and Bachelor of Science in Education.

Freshman

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
Education I*a*	Psychology	3	189
Education II*b*	Methods of Study		189
English I	Rhetoric and Composition	3	79
French I	Elementary Course	3	92
or			
German I	Elementary Course		92
or			
Latin I	Cicero, Comp. and Gram.	6	72
Mathematics I	Solid Geom. and Trig.		89
History I	Modern European		83
Botany I	General Botany		76
Chemistry I	General Chemistry		77
Agronomy I	General Agriculture		117
Physics I	General Physics		96
Foreign Language	French, German or Latin		
		15	

Sophomore

Education III*a*	Special Methods	3	189
Education IV*b*	School Management and Supervision		189
Group II		3 or 6	
Group III		3 or 6	
Group IV		3 or 6	
		15	

Junior

Education V*a*	History of Education	3	190
Education VI*b*	Secondary Education		190
Philosophy I*a* and *b*	General Psychology	3	94
Electives		9	
		15	

Senior

Education VII	Principles and Philosophy of Education	3	190
Education VIII*a*	Child Study	3	190
Education IX*b*	Practice Teaching		191
Education Special	High School Teachers' Course	1	191
Electives		9	
		16	

ELECTIVES

REGULATIONS.—Upon registration for the Junior year, each student shall submit his choice of electives to the Dean of the College.

No student shall elect more than the required number of electives without the approval of the Dean of the College.

ELECTIVE GROUPS

II. Language Group.	*III. Philosophy Group.*	*IV. Science Group.*
English,	Psychology,	Mathematics,
Latin,	Ethics,	Agriculture,
Greek,	Logic,	Astronomy,
French,	Bible IV,	Chemistry,
German,	History,	Physics,
Spanish,	Pedagogy,	Geology,
Italian.	Public Law,	Zoology,
	Economics,	Botany,
	Sociology,	Physiology,
	Political Science.	Bacteriology,
		Surveying,
		Mechanics,
		Drawing,
		Descriptive Geometry,
		Manual Training, (See Mechanic Arts)

DEPARTMENTS OF INSTRUCTION

EDUCATION

PROFESSOR THACKSTON
PROFESSOR COX
PROFESSOR LYNCH

EDUCATION I*a*.—*Psychology*.—This is an elementary course designed to set forth the main phenomena of mental life, and furnish the student with the concepts and terms which will constantly recur in his further study. This course will aim especially to prepare the student for the examination on Psychology for the State Certificate. The text-book prescribed from time to time by the State Superintendent of Education will be used in connection with lectures and much reference work to the standard American writers. (*Required of Freshmen; first semester*; 3 *hours*.)

EDUCATION II*b*.—*General Methods*.—This course will have for its main purpose the application of the laws of psychology, as learned in Education I., to the general methods of study and of teaching. The student will be shown the best methods of study that psychological laws indicate and he will be urged to pattern his own habits of study accordingly. The general principles and methods of teaching will be stressed. (*Required of Freshmen; second semester*; 3 *hours*.)

EDUCATION III*a*.—*Special Methods*.—The special methods to be followed in teaching the elementary and grammar school subjects. Stress will be placed upon the special methods for language, history, geography and arithmetic. (*Required of Sophomores; first semester*; 3 *hours*.)

EDUCATION IV*b*.—*School Management and Supervision*—This course is designed to give the practical and theoretical information needed by principals and county superintendents in their supervision of elementary and grammar schools. During the year many practical problems are taken up and fully discussed. Discipline, school and class hygiene, purpose of education, organization and classifica-

tion, grading and promoting—special plans of promotion being discussed—programs, time tables, report cards, plan and progress books, departmental teaching, exercises and intermissions, the recitation, etc. (*Required of Sophomores; second semester; 3 hours.*)

EDUCATION V*a*.—*History of Education.*—This course has two main purposes. First, endeavor is made to lead the student to see and appreciate the good things in the many systems of education studied and apply them to his own present-day work as far as possible. In the second place, fine ideals and incentives for devotion to his calling are furnished by studying the lives and works of the great educational leaders. (*Required of Juniors; elective; first semester; 3 hours.*)

EDUCATION VI*b*.—*Secondary Education.*—This course is designed especially to give insight into the problems of the secondary and high school. Many problems relating to the high schools in this and other Southern States are thoroughly gone over for the purpose of understanding the present situation and planning for better things. The following special topics may be mentioned: Psychology and Pedagogy of Adolescence, High-School Athletics, History of Secondary Education, High-School Courses, comparative study of secondary education in the different countries, etc. Lectures and reference work supplement the reading of several texts on this subject. (*Required of Juniors; elective; second semester; 3 hours.*)

EDUCATION VII.—*The Principles and Philosophy of Education.*—This course attempts to select from modern psychology and sociology all of the facts that will aid the teacher in obtaining a clearer insight into the actual workings of the child's mind in the process of learning. The following are a few of the topics studied: The brain and nervous system, the place of the body in education, attention, interest, imitation, the social, moral and religious aspects of education, etc. (*Required of Seniors; elective; both semesters; 3 hours.*)

EDUCATION VIII*a*.—*Child Study.*—The aim of this course is to give the student an insight into the physical

development and growth of the child, the meaning of protracted infancy, the origin and development of instincts, development of intellect, heredity, individuality, abnormalities and the application of facts learned to school work, etc. (*Required of Seniors; elective; first semester;* 3 *hours.*)

EDUCATION IX*b*.—*Practice Teaching.*—Knowledge of the principles, theory and history of education will better fit any teacher for his work, but these without concrete experiences and practice under direction will not give the best results. Realizing this, the course is planned for the purpose of giving this experience under the supervision and watchcare of the professor in charge of the department in which the subject is taught. This practice teaching will occupy the same position in the teachers' course as laboratory work does in the science departments and will have the same proportion of credit as laboratory work. (*Required of Seniors; second semester;* 3 *hours.*)

SPECIAL COURSES FOR HIGH SCHOOL TEACHERS

The following courses are offered by the different departments of the University for the special preparation of high school teachers. Each course will aim to give to the student the teachers' point of view of the subject, and will go over and organize in a general way all the material that the special subject should cover in the high school course. Special attention will be given to the methods of presenting the subjects to a class. The best text-books and reference books will be pointed out along with special books and magazines that have recently appeared on the teaching of the subject. In the sciences the student will have the privilege of handling and setting up the apparatus used in making demonstrations before a class. Besides this he will be required to select lists of the most suitable apparatus for high school laboratories. Practice teaching in the Practice High School will be given to those students who take these courses. In a word, it is the aim of these courses to fit students to begin their teaching in an efficient and satisfactory manner without having to experiment for a year or two.

These courses are open only to teachers in the Junior,

Senior and Graduate classes. Students are REQUIRED to take the course or courses that deal with the subject which they are preparing to teach in the high schools; but none of these courses may be taken by a student until he has made a thorough study of the same subject or subjects in the college classes.

EDUCATION X*a*.—*The Teaching of English.*—A general survey of high school English will be made and the methods of presenting same will be given. Text-book, reference reading, observation and practice teaching. (1 *hour; first semester. Professor Farr.*)

EDUCATION XI*b*.—*Botany in the High School.*—High school botany will be viewed from the teacher's standpoint. Apparatus for laboratory will be selected, field trips planned and made, and best text-books pointed out. Text-books and reference reading required. (1 *hour; second semester. Professor Floyd.*)

EDUCATION XII*a*.—*Methods of Teaching High School Mathematics.*—Text-book, lectures and practice teaching. (1 *hour; first semester. Professor Keppel.*)

EDUCATION XIII*b*.—*High School History.*—Methods and materials used in presenting history to high school pupils. Observation and practice teaching, text-books and reference reading required. (1 *hour; second semester. Professor Bernard.*)

EDUCATION XIV*a*.—*Teaching of High School Physics.*—Methods, the selection of proper apparatus, etc. (1 *hour; first semester. Professor Benton.*)

EDUCATION XV*b*.—*High School Chemistry.*—Methods, lectures, the selection of proper apparatus, etc. (1 *hour; second semester. Professor Flint.*)

EDUCATION XVI*a*.—*Methods of Teaching German in the High School.*—Lectures and reference reading required. (1 *hour; first semester. Professor Crow.*)

EDUCATION XVII*b*.—*Teaching French in High School.*—Methods and devices; lectures and text-books. (1 *hour; second semester. Professor Crow.*)

EDUCATION XVIII*b*.—*Teaching High School Agriculture.*—Making out suitable courses, selecting apparatus for

experimenting, methods of presenting subject. Lectures and required readings. (1 *hour; second semester. Professor Vernon.*)

OTHER DEPARTMENTS

In order to avoid repetition, detailed description of the other subjects that may be taken by students in the Teachers' College are not printed here. The courses in Botany, Chemistry, Economics, English, French, German, History, Latin, Mathematics, Philosophy, Physics, and Zoology, will be found in the section of the catalogue devoted to the College of Arts and Sciences; the courses in Agriculture in that devoted to the College of Agriculture.

STATE HIGH SCHOOL INSPECTION

This division of the college was made possible by the generous aid of the General Educational Board of New York. (See page 15.)

The Dean of the College will visit and inspect the high schools in the State, give what aid he can in the establishment of high schools where they do not exist and help to advance those already established. Where his co-operation is desired, the inspector will take great pleasure in conferring with county superintendents, school boards, principals, teachers and citizens on any educational matter that may tend to the welfare and advancement of the high schools in the State.

RURAL SCHOOL INSPECTION

The inspection of rural schools is a phase of the work of the College that was made possible by the munificence of the Southern Educational Board. This Board furnishes all the funds necessary for the maintenance of this position through the State Department of Education, under the direction of the State Superintendent of Education.

Professor Lynch, who has charge of this work, will visit, inspect and in every way aid in the advancement of rural schools in the State. He will gladly co-operate with county superintendents, school boards, teachers and citizens in the advancement of rural education.

NORMAL SCHOOL

Believing that the professional work of teachers should not begin before they have had at least two years of the high school course, the Normal School has for its first two years the ninth and tenth grades of the Standard High School. Besides these regular high school studies, certain reviews of elementary and grammar school subjects are required in the first and second years. In addition to the sixteen prescribed hours in these two years, the student will choose either Latin or science to make up the required twenty hours. The subject chosen in the first year must be pursued through two consecutive years.

In the third year, twelve hours are prescribed; while the remaining six or eight hours must be chosen from the subjects as shown in the Curriculum. The fourth year has eight prescribed hours and leaves from eleven to thirteen and one-half hours to be selected by the student. The consent of the Dean must be secured before the student decides upon his electives.

No one will be admitted to the first two years of the Normal School except those who intend to become teachers.

Students may enter the first year of the Normal school, provided they have completed work equivalent to that of the eighth grade of our graded schools.

NORMAL SCHOOL CURRICULUM.—To those who complete the Normal School Curriculum, a diploma of graduation will be given.

REVIEW COURSES.—The Review Courses for teachers will cover all the subjects required for the county and State certificates. Teachers may enter these courses at any time during the session. They can always find classes that will suit their needs. Special announcements will be issued concerning the Spring Reviews, which cover a term from three and one-half to four months in length.

NORMAL SCHOOL CURRICULUM

Leading to the Normal School Diploma

First Year

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
English	Grammar, Composition and Classics	4	198
History	Ancient History	3	200
Mathematics	Algebra	4	201
Reviews	History and Geography	3	201
Take one of the following:			
Latin	Beginner's Latin	4	200
Science	Physical Geography and Physiology	4	202
	Required	18	

Second Year

English	Composition and Classics	4	199
History	Mediæval and Modern History	4	200
Mathematics	Algebra	3	201
Reviews	Grammar and Arithmetic	3	202
Take one of the following:			
Latin	Cæsar (4 books) and Composition	4	201
Science	Biology	4	202
	Required	18	

Third Year

*Education NI*a*	School Management	4	198
*Education NII*b*	Review and Methods of Elementary School Subjects		198
*English	Rhetoric, Composition and Classics	4	199
*Mathematics	Plane Geometry	4	201
Take from 6 to 8 hours of the following:			
Latin	Cicero (6 orations) and Composition	4	201
German	Elementary Course	4	201
French	Elementary Course	4	199
Science	Physics	4	202
Manual Training	Wood-work	3	201
Agriculture	Elements of Agronomy and Horticulture	3	198
	Required	18 to 20	

Fourth Year

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
*Education NIII*a*	History of Education		198
*Education NIV*b*	Reviews and Methods of Grammar School Subjects	4	198
*English	American and English Literature and Composition	4	199
History	American History and Civics	4	200
Take from 7 to 9½ hours of the following:			
Latin	Virgil (6 books) and Composition	4	201
Mathematics	Plane Trigonometry, Solid Geometry	4	201
German	Intermediate Course	4	200
French	Intermediate Course	4	199
Science	Chemistry	4	202
Agriculture	Elements of Animal Husbandry and Agricultural Engineering	3	198
Manual Training	Forge and Foundry Work	1½	201
	Required	19 to 21½	

Fifth Year

Education I*a*	Psychology		189
Education II*b*	Methods of Study	3	189
English I	Rhetoric and Composition	3	79
French I or	Elementary Course		92
German I or	Elementary Course	3	92
Latin I	Cicero, Composition and Grammar		72
Agronomy I	General Agriculture		117
Botany I	General Botany		76
Chemistry I	General Chemistry		77
Foreign Language	French, German or Latin	6	
History I	Modern European		83
Mathematics I	Solid Geometry and Plane Trigonometry		89
Physics I	General Physics		96
	Required	15	

* Starred subjects are required of all Normal School students.

CURRICULUM FOR HIGH SCHOOL GRADUATES

Leading to Normal School Diploma

One Year

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
Education NI*a*	School Management	4	198
Education NII*b*	Review and Methods of Elementary School Subjects		198
Education NIII*a*	History of Education	4	198
Education NIV*b*	Reviews and Methods of Grammar School Subjects		198
Education I*a*	Psychology	3	189
Education II*b*	Methods of Study		189
English I	Rhetoric and Composition	3	79
Take one of the following:			
Agronomy I	General Agriculture	3	117
Botany I	General Botany	3	76
History I	Modern European	3	83
French I	Elementary Course	3	92
German I	Elementary Course	3	92
Latin I	Cicero, Comp. Grammar	3	72
Mathematics I	Solid Geometry, Plane Trigonometry	3	89
	Required	17	

DEPARTMENTS OF INSTRUCTION

AGRICULTURE

PROFESSOR VERNON

AGRICULTURE NI.—See Agriculture *A*.
AGRICULTURE NII.—See Agriculture *A*.

EDUCATION

PROFESSOR THACKSTON

EDUCATION NI*a*.—*School Management*.—The general problems of school organization, classification and discipline will receive attention. School hygiene, recess and play. Relation of teacher to child, home and community. (*First semester; third year; 4 hours.*)

EDUCATION NII*b*.—*Reviews and Methods of Elementary Subjects*.—Reviews of the elementary school subjects from the teacher's point of view. Methods of teaching reading, spelling, primary arithmetic, writing, language and nature study. (*Second semester; third year; 4 hours.*)

EDUCATION NIII*a*.—*History of Education*.—An elementary course covering the broad outlines of the development of education from the time of the early Greeks to the present. Leaders of educational thought in the different periods will be studied. The history of our present educational system will be gone into. (*First semester; fourth year; 4 hours.*)

EDUCATION NIV*b*.—*Reviews and Methods of Grammar School Subjects*. —Reviews of the grammar school subjects from the teacher's point of view. Methods of teaching and studying history, arithmetic, geography, grammar, etc. (*Second semester; fourth year; 4 hours.*)

ENGLISH

MR._____

ENGLISH NI.—*Grammar, Composition and Classics*.—A thorough course in high school grammar will be given

(*twice per week*). Compositions, oral and written. At least one written composition every week. Special attention will be given to narration. Classics, College Entrance Requirements and others. Minimum, ten per year. Spelling and letter-writing. (*Both semesters; first year; 4 hours.*)

ENGLISH NII.—*Composition and Classics.*—A text-book in composition used as guide. (2 *times per week.*) Description and narration will receive the major part of the time. Oral and written composition. One written composition each week. Classics two times per week. College Entrance Requirements. Spelling and letter-writing. (*Both semesters; second year; 4 hours.*)

ENGLISH NIII.—*Rhetoric, Composition and Classics.*—The formal rules of rhetoric will be studied in so far as they are needed in composition work and the study of the classics. Compositions written every week. Exposition stressed. Classics two hours per week. College Entrance Requirements. Spelling and letter-writing. (*Both semesters; third year; 4 hours.*)

ENGLISH NIV.—*American and English Literature and Composition.*—Most of the time of this class will be devoted to the study of literature and not to the history of literature. Much reading will be required. Compositions one per week. Argumentation stressed. Spelling and letter-writing. (*Both semesters; fourth year; 4 hours.*)

FRENCH

MR._____

FRENCH NI—*First Year.*—Pronunciation and reading aloud, dictation and conversation, the auxiliary and regular verbs, irregular verbs used daily, simple constructions and grammar. The reading of simple selections. (*Both semesters; third year; 4 hours.*)

FRENCH NII.—*Second Year.*—Work of first year continued. Translations from English to French, grammar and elements of syntax, short written compositions, dictation, conversation, reading of selections. (*Both semesters; fourth year; 4 hours.*)

GERMAN

MR._____

GERMAN NI.—*First Year.*—Elements of the grammar, mastery of the most essential forms, reading of simple German, pronunciation, dictation and conversation. (*Both semesters; third year; 4 hours.*)

GERMAN NII.—*Second year.*—Work of first year continued. Much reading done. Drills in forms and pronunciation. Practice in conversation. (*Both semesters; fourth year; 4 hours.*)

HISTORY

MR. HADLEY AND MR._____

HISTORY NI.—*Ancient History.*—The major part of the time will be given to the study of the history of Greece and Rome. Reference reading will be required in connection with the topics of the text book. (*Both semesters; first year; 3 hours.*)

HISTORY NII.—*Mediaeval and Modern History.*—This begins with the time of Charlemagne and comes down to the present. Mediæval history will be touched lightly, while stress will be placed upon English history. Text-book and reference reading required. (*Both semesters; second year; 4 hours.*)

HISTORY NIII.—*American History and Civics.*—A general survey from the early discoveries to the present time. Text-book and reference reading required. The work in Civics will be studied in connection with the history so far as possible. Stress will be laid upon the study of local history and geography in Florida, local industries, transportation and communication, organized community life and public health, local, state and national governments. Text-book used. (*Both semesters; fourth year; 4 hours.*)

LATIN

MR._____

LATIN NI.—*Beginner's Latin.*—A good first-year book will be studied and completed. (*Both semesters; first year; 4 hours.*)

LATIN NII.—*Caesar, Composition and Grammar.*—Four books of Cæsar will be carefully read. Prose Composition and Grammar once per week. (*Both semesters; second year; 4 hours.*)

LATIN NIII.—*Cicero, Composition and Grammar.*—Six orations of Cicero will be read in class. Prose composition and grammar once per week. (*Both semesters; third year; 4 hours.*)

LATIN NIV.—*Virgil, Composition and Grammar.*—Six books of Virgil. Prose composition and grammar once per week. (*Both semesters; fourth year; 4 hours.*)

MANUAL TRAINING

PROFESSOR WEICHARDT

MANUAL TRAINING NI.—*Wood-work.*—See page 163, *Mechanic Arts.*

MANUAL TRAINING NII.—*Forge and Foundry.*—See page 163, *Mechanic Arts.*

MATHEMATICS

MR._____

MATHEMATICS NI.—*Algebra.*—This is a beginner's course, and it will cover the work through elementary quadratics. (*First year; both semesters; 4 hours.*)

MATHEMATICS NII.—*Algebra.*—Begin with quadratics and finish the ordinary second-year algebra. (*Both semesters; second year; 3 hours.*)

MATHEMATICS NIII.—*Plane Geometry.*—The first five books in plane geometry. (*Both semesters; third year; 4 hours.*)

MATHEMATICS NIV.—*Solid Geometry and Plane Trigonometry.*—During the first half of the year solid geometry is studied. In the second half plane trigonometry is taken. (*Both semesters; fourth year; 4 hours.*)

REVIEWS

MR._____

REVIEWS NI.—*History and Georgraphy.*—Thorough and complete reviews of U. S. history and geography are made.

A broader and deeper view of these subjects than that given by the grades, will be undertaken. (*Both semesters; first year;* 3 *hours.*)

REVIEWS NII.—*Grammar and Arithmetic.*—The grammar and arithmetic of the lower grades will be reviewed and broadened. Stress will be put on thoroughness and exactness in the subjects. (*Both semesters; second year;* 3 *hours.*)

SCIENCE

MR. PERRY AND MR._____

SCIENCE NI.—*Physical Georgraphy and Physiology.*—The work in physical geography will be about as outlined in the newer secondary school geographies. Laboratory and field work will be done and notes kept of all observations. Physiology will be given one semester and it will cover a practical course in physiology, sanitation and hygiene. Laboratory work with notes. (*Both semesters; first year;* 4 *hours.*)

SCIENCE NII.—*Biology.*—This course will cover plant, animal and human biology in the order here stated. Laboratory experiments will be performed and note-books kept. (*Both semesters; second year;* 4 *hours.*)

SCIENCE NIII.—*Physics.*—Elements of physics, with problems and laboratory work. Carefully kept note-books required. (*Both semesters; third year;* 4 *hours.*)

SCIENCE NIV.—*Chemistry.*—Elements of chemistry. Laboratory work and carefully kept note-books required. (*Both semesters; fourth year;* 4 *hours.*)

THE PRACTICE HIGH SCHOOL OF THE TEACHERS' COLLEGE

This part of the work of the University includes the former Sub-Collegiate Division. Hereafter it will be connected with the Teachers' College and Normal School, and will be used as a practice and model school for the students of this college. Here student-teachers will have opportunity to observe skilled instructors teach the high school subjects, and will also engage in their practice-teaching in those subjects that they desire to teach in the high schools.

ADMISSION.—Only graduates of Junior High Schools, or students who have finished work equal to that of the tenth grade, will be admitted to this High School. The number of students admitted will be limited to from twenty to twenty-five to each year or grade. NO STUDENT WILL BE ADMITTED WHO HAS NOT COMPLETED THE COURSE OFFERED BY THE HIGH SCHOOL AT HIS HOME.

This rule will not be waived for any student except upon the written application of the parent or guardian, accompanied by the endorsement of his high school principal.

The work offered will be that of the eleventh and twelfth grades of the Standard High Schools of Florida. Students will be required to take English and mathematics the third year and English and history the fourth year. This requires eight definite hours in each year. The remaining ten to twelve hours in the third year and eleven to thirteen and one-half hours in the fourth year may be chosen only after consultation with the Dean of the Teachers' College. Not less than eighteen nor more than twenty-two hours may be taken by any student in any one year except by special permission. If a modern foreign language is chosen, it must be pursued for two years.

CURRICULUM

Third Year, or Eleventh Grade

Names of Courses	Nature of Work	Hours Per Week	Description, See Page
*English	Rhetoric, Composition and Classics	4	199
*Mathematics	Plane Geometry	4	201
Take from 10 to 12 hours of the following:			
Latin	Cicero (6 orations) and Composition	4	201
German	Elementary Course	4	200
French	Elementary Course	4	199
Science	Physics	4	202
Manual Training	Wood-work	3	201
Agriculture	Elements of Agronomy and Horticulture	3	198
	Required	18 to 20	

Fourth Year, or Twelfth Grade

*English	American and English Literature and Composition	4	199
*History	American History and Civics	4	200
Take from 11 to 13½ hours of the following:			
Latin	Virgil (6 books) and Composition	4	201
Mathematics	Solid Geometry and Plane Trigonometry	4	201
German	Intermediate Course	4	200
French	Intermediate Course	4	199
Science	Chemistry	4	202
Agriculture	Elements of Animal Husbandry and Agricultural Engineering	3	198
Manual Training	Forge and Foundry Work	1½	201
	Required	19 to 21½	

* Starred subjects are required of all students.

SPECIAL DEPARTMENTS

The following departments do not rightly belong under any individual college, and are hence grouped here.

EXPRESSION AND PUBLIC SPEAKING

MR. CHAPMAN

EXPRESSION AND PUBLIC SPEAKING.—In the comparatively brief course in Expression and Public Speaking during the years 1910-13, particular attention has been given to the importance of establishing a correct method of breathing, to the correction of faulty articulation, and to the principles of interpretation by voice, gesture, and facial expression. It is believed that the interest shown in the work of the Department gives promise of a greatly increased interest during the coming year, and it is confidently expected that it will be possible to offer a much longer and more comprehensive course than was possible during the year recently closed.

On account of lack of funds a small tuition fee will be charged in this department for the present.

MUSIC

MR. MILLER

The department has direction of the University glee, guitar, and mandolin clubs, of the Student orchestra, and of the music at the chapel exercises. Instruction has during the past year been given in voice culture, sight singing, violin and other stringed instruments. To this will be added lessons on the piano.

VOCAL.—Special attention is given to teaching control of breath and of singing muscles and to developing power, range, and pureness of tone. All students of vocal music are required to take two lessons a week in sight singing, and students not registered for the regular work are urged to attend the meetings of this class. In connection with this branch an excellent glee club has been organized. During the year several concerts have been given locally and in neighboring cities, and one trip of a week's duration has been taken. For 1913-14 a choral society will be formed

and, in addition to part singing, at least one oratorio will be undertaken.

INSTRUMENTAL.—The Director of the department has had years of experience in orchestral work, and has succeeded in developing the University orchestra to a high state of excellence. During the past year, in addition to training this and the guitar and mandolin clubs, he has devoted a large part of his time to teaching the violin.

For detailed information as to the methods and character of the instruction, not only in the musical branches here mentioned but also in others, one should address Prof. J. Oscar Miller, Director of Music Department.

Owing to lack of funds for this department a small charge is made for tuition.

PHYSICAL CULTURE AND ATHLETICS

MR. PYLE

The gymnasium and athletic fields afford the best of opportunities for developing the physical man. The gymnasium is well equipped with the needed apparatus for indoor training, and has large dressing-rooms. In connection with it are a fine basket ball court and a concrete swimming-pool. The athletic fields provide excellent grounds for base ball, foot ball, tennis, and track events.

GYMNASTICS.—All Sub-Freshmen and Freshmen are required to take three hours per week of gymnasium work under the direct supervision of the Physical Director. In the other classes the work is optional. The course consists of drills with dumb bells, Indian clubs, wands, and free hand; heavy and light work on buck, German horse, parallel bars, horizontal bar, etc.; tumbling and mat; basket ball and other games. The more proficient gymnasts compete for positions on the "Varsity Gymnasium Team," which gives several public performances during the year, and an exhibition during Commencement week.

ATHLETICS.—Assisted by special coaches, when needed, the Physical Director trains the foot ball, base ball, basket ball, tennis, and track teams. The University is a member of the Southern Intercollegiate Athletic Association, and stands for clean, amateur athletics.

UNIVERSITY EXTENSION

DIVISION OF UNIVERSITY EXTENSION

STAFF

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

P. H. ROLFS, M.S.,
Superintendent of Farmers' Institutes.

J. J. VERNON, M.S.A.,
Director of Agricultural Correspondence Courses.

A. P. SPENCER,
Assistant in Extension Work.

C. K. McQUARRIE,
Assistant Superintendent of Farmers' Institutes.

This division is carried on for the purpose of extending the benefits of the University to every community in the State. The work has broadened out into the following more or less distinct fields:

1. Lecture and Literary Bureaus.
2. Correspondence Courses in Agriculture.
3. Institutes: (a) Farmers' Institutes.
   (b) Women's Institutes.
   (c) County Institutes and Produce Contests.
   (d) Train Institutes.
4. Farm Demonstration Work.
5. Co-operation With County Crop Improvement Associations.
6. Field Instruction.
7. Farmers' Information.
8. Boys' Corn Clubs and Girls' Gardening and Canning Clubs.
9. Publications.

LECTURE AND LITERARY BUREAUS

Teachers, and others interested, are reminded that since September, 1906, the University has maintained extension work, under which courses of free lectures are given, when desired, to any high school in the State, and reading circles are organized and conducted, without charge, in any

school or community. The services of the University are thus offered to all the people of the State, and it is earnestly hoped that many schools and communities will take advantage of them.

There will be no charge for these services, except the necessary expenses for postage and transportation.

The *Literary Bureau* will arrange and direct courses of reading and will help the reader in any problem or difficulty. To school reading circles it will also, as far as possible and consistent with the best interests involved, send out books and magazines from the University libraries.

County Superintendents, Principals of Schools, and others, are requested to communicate with Professor Rolfs, Director of Extension Work, or with the President of the University, stating in what feature they are most interested. They will then receive more detailed and explicit information.

The *Lecture Bureau* will, on request, arrange to have the President and various members of the Faculty of the University visit the public schools of the State and give lectures either on general educational themes or on the more technical subjects connected with their work. By means of such lectures it is believed that local school life will be quickened, and that the University will be brought into more intimate touch with the people, and hence more fully serve them as a public institution.

During the year arrangements were made for holding lectures in several places in the State. The following have been given, under the auspices of the Methodist Church, to large audiences in Gainesville:

1. "The Philosophy of Clothes;" by Dr. H. W. Cox. 2. "Plant Associations in Florida;" by Director P. H. Rolfs. 3. "The Panama Canal Zone;" by Dr. E. R. Flint. 4. "Astronomy;" by Dr. J. R. Benton. 5. "English Translations of the Bible;" by Dr. Jas. M. Farr. 6. "The State University and Its Ideals;" by Dr. A. A. Murphree. 7. "Flower Pollination;" by Major W. L. Floyd. 8. "Cuba and the Cubans;" by Dr. H. G. Keppel 9. "Goethe's Faust;" by Dr. C. L. Crow.

During the session 1913-1914 the following lectures will be offered:

PRESIDENT MURPHREE:

1. The State and Free Schools.
2. Education and Citizenship.
3. Agriculture and the Public Schools.
4. Psychology Applied to Teaching.
5. Does College Education Pay?
6. The Function of the State University.
7. History of Higher Education in Florida.
8. The University of Florida (Illustrated).

DR. FARR:

1. Chaucer and His Times.
2. The Early English Drama.
3. Browning and Tennyson.
4. The Novel in English.
5. The South in American Literature.

DR. THACKSTON:

1. The Reflex Influence of Teaching.
2. The New Education.
3. Manual Training.
4. Does Education Pay?

DR. FLINT:

1. A Summer in the Canal Zone (Illustrated).
2. Physiology and Chemistry of Digestion.

DR. KEPPEL:

1. A Trip Through Holland (Illustrated).
2. Cuba and the Cubans (Illustrated).

DR. BENTON:

1. Wireless Telegraphy.
2. Invisible Rays.
3. Astronomy (Illustrated).

DR. CROW:

1. Higher Education in Germany and in the United States.
2. German Student Life.
3. Goethe's Faust.

MAJOR FLOYD:

1. Plant Propagation and Selection.
2. Plant Diseases.
3. Micro-organisms of the Garden and Farm.
4. Flower Pollination (Illustrated).

DR. DAVIS:

1. Insects and Disease.
2. Good and Bad Bacteria in Milk.

PROF. VERNON:

Agricultural Instruction in the Schools of Florida—

(a) The Grammar School.
(b) The High School.
(c) The College.

CORRESPONDENCE COURSES IN AGRICULTURE

Although placed under this division for the sake of uniformity, these Correspondence Courses are given under the direction of Dean J. J. Vernon, and are designed to meet the needs of:

1. Teachers and prospective teachers.
2. Farmers and prospective farmers.
3. Farmers' wives, sons and daughters.
4. Others who may be interested.

The position of the farming classes in our social and economic system will materially change when they are as well trained for their life work as those of other callings. The Legislature of 1909 authorized instruction in agriculture in the public schools of Florida, and, therefore, all who choose farming in the future will have had an opportunity of gaining some training designed to fit them for life upon the farm. Few who are now engaged in agricultural pursuits have had such opportunities. Recognizing this, the authorities are striving in every way possible to carry the benefits of the University to every citizen of the Commonwealth. By means of correspondence courses it is hoped to reach a large and deserving body who have heretofore been unable to gain both scientific knowledge and practical training.

Correspondence courses are not as effective as resident study, but they are far better than no educational advantages. They lack the personal factor of the instructor, and most of the benefits of laboratory work and illustrative equipment. On the other hand, with ambitious and industrious persons, such courses develop independence of thought and effective individuality of action. In this respect they are often superior to resident study.

The courses, it is hoped, will eventually cover all phases of rural activity. Only white persons will be accepted. Colored farmers are referred to the Agricultural and Mechanical College for Negroes at Tallahassee.

CORRESPONDENCE COURSE IN AGRICULTURE FOR TEACHERS

The Correspondence Course in Agriculture for Teachers will begin October 1, 1913, and close June 1, 1914. Any person connected with or interested in the educational work of the State may register at any time during the year and may pursue the work as rapidly or as slowly as other duties permit. The course aims to prepare for examinations in elementary agriculture for teachers' certificates, and to fit teachers for giving instruction in nature study and agriculture in the public schools of the State. The work will consist of text-book study and experimental exercises. In order to approximate class-room results, rather elaborate lists of questions, each question embodying in most cases only one idea, will be issued on every lesson. The answers to these questions will be corrected, errors fully explained by the instructor, and the manuscripts returned.

The course is based upon the text-book adopted by the State Superintendent of Public Instruction.

The expense to each teacher will be: Registration fee, $1.00; text-book, 75 cents; equipment for experimental exercises, about 50 cents; and postage on all manuscripts sent to and from the University. The instruction and other necessary literature will be furnished by the University free.

CORRESPONDENCE COURSES IN AGRICULTURE FOR FARMERS

The following courses are offered for the year 1913-14:

1. Elementary Agriculture.
2. Soils.
3. Tillage.
4. Drainage and Irrigation.
5. Manures and Fertilizers.
6. Field Crops (General).
7. Field Crops (Southern).
8. Types and Breeds of Live Stock.
9. Dairy Husbandry.
10. Poultry Husbandry.
11. Animal Breeding.
12. Feeds and Feeding.
13. Citrus Fruits and Citrus Culture.
14. Trucking.

Any course in the list may be selected. It is usually best to pursue one course at a time, upon the completion of which another may be started. Furthermore, a logical order should be followed. A succession of courses may be arranged covering two or more years, thus affording opportunity to acquire during leisure moments a good knowledge of agricultural science.

There is no age limit and no examinations are required. Registration may be made at any time during the year, and the work may be pursued as rapidly or as slowly as the time, ability or inclination of the individual may dictate.

To cover office expenses a Registration fee of $1.00 will be charged for each course. The instruction in all courses will be free. All persons registering for a course will be required to provide themselves with a text-book, and pay the postage on all manuscripts to and from the University.

Those who wish further information, or who desire to register for one of the courses, should communicate with J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida. Upon request an application blank will be forwarded to any address.

INSTITUTES

FARMERS' INSTITUTES.—*Farmers' Institutes* bring directly to the workers of the soil the discoveries of the Agricultural Experiment Station and the latest teachings of the College of Agriculture, and present them so that they can be easily undersood. They are really short courses in Agriculture held in various parts of Florida. In the older States, where they have been held for a number of decades, the teaching is done as carefully as in any college or university. In Florida they have been so systematized that the largest and best results possible are obtained. The amount of this work that can be done in the state depends, however, directly upon the amount of support received.

Equipment.—The Farmers' Institute squads are equipped with the best and most complete appliances. For the lecture work, sixty large charts, each six feet square, are used. These tabulate the lectures in such a way as to make

the main points stand out strongly before the audience. To supplement the charts about one hundred enlarged photographs, illustrating particular points, are carried. As some communities prefer, especially during planting and shipping seasons, to have sessions at night, a stereopticon lantern, equipped for acetylene gas or electrical attachments, is frequently found of use. With it are carried about three hundred views, varied enough to suit the interests of almost any part of the State.

Results.—The results from systematic work in Farmers' Institutes are felt almost immediately in the general improvement of agricultural conditions. In Florida, the activities of the Farmers' Institutes have been coincident with the greatest improvement in crop production the State has ever seen. Taking corn as an illustration, the crop for 1907 was the largest produced up to that time, 4,351,000 bushels. That year 42 sessions of Institutes were held, with a total attendance of 4,491. The average corn production was 9.6 bushels per acre. In 1908, 6,584,000 bushels of corn were produced, at the rate of 10.5 bushels per acre. During this year 54 sessions were held, with a total attendance of 5,576. In 1909 the corn crop amounted to 8,379,000 bushels, with an average production of 12.6 bushels per acre. That year nearly 100 Institutes were held, with a total attendance of about 10,000. During the fiscal year ending June 30, 1911, 192 sessions of Institutes were held, with a total of 19,064 in attendance. The corn production of the State for 1911 rose to 14 bushels per acre, almost a fifty per cent increase of yield per acre since the beginning of systematic Farmers' Institute work.

During the fiscal year ending June 30, 1912, there were 177 sessions, with a total attendance of 42,024. The average corn yield was over 12 bushels per acre, in spite of the most unfavorable season that Florida has experienced for years.

As the majority of the sessions held during this year were in the corn-producing section of the State, and were designed for the betterment of the soil and for the improvement especially of the corn crop, the Institutes must have had more or less beneficial effect upon the production.

Other crops have been similarly improved; but corn, being the largest of the farm crops, serves best for illustrative purposes. And the increased production, due for the most part, or entirely, to better farming methods, has added millions of dollars annually to the revenues of the farmers of the State.

WOMENS' INSTITUTES.—As it is quite as important to disseminate information that will benefit farm homes as it is to teach improved methods of agriculture, *Women's Institutes* are now being held in nearly all the Southern States. The two movements go hand in hand, for better crops and better farms are one step in the direction of better homes. The Women's Institutes are perhaps the more important, for it is well known that farm homes are less likely to be supplied with modern utensils and to be managed properly than are the farms themselves.

Three years ago, with the co-operation of the Department of Home Economics of the State College for Women, the holding of Women's Institutes was begun in Florida. Since then 22 sessions have been held, with a total attendance of 1,758. The demand for them is steadily growing, and where they are conducted in connection with Farmers' Institutes, the attendance of women is always equal to that of men.

COUNTY INSTITUTES AND PRODUCE CONTESTS.—In order to stimulate interest, *Produce Contests* were arranged in connection with Institutes held in Gadsden and Liberty Counties. For each of these contests the Southern Ruralist offered as prizes 50 yearly subscriptions, the Southern Planter 10, and the Progressive Farmer 10. The result was extremely gratifying: nearly all the farmers and their families from fifteen miles around attended; and the exhibits of corn, cane, hogs, poultry, etc., would have been creditable to a county fair.

During the coming year such contests will be held in more places, but always in connection with the more extended sessions known as *County Institutes.*

TRAIN INSTITUTES.—By running in co-operation with

the University of Florida, "Better-Farming Specials" over 1,400 miles, the railroads of the State indicated a year ago their desire to assist in agricultural development. This year, owing to lack of funds, the Extension Division of the University was not able to engage in a similar undertaking. Several trains, equipped and financed entirely by the railroads, were, however, run, although none of these made long trips. As far as possible the Extension Division co-operated in this work, and especially with the G. S. & F. R. R. in its effort to develop the farming lands in Florida through which its trains pass.

The Extension Division also joined the Southern R. R. in the endeavor to interest more farmers in dairying and to put this industry on a better basis. The "Dairy Train" sent out for this purpose had good results. In every way possible, too, it furthered the purposes of the "Good Roads Train."

The "Better-Farming Specials" fill an important niche, and especially do they bring the urban population into closer co-operation with the farming classes.

ATTENDANCE.—During the fiscal year ending June 30, 1912, the attendance on Institutes was considerably increased on account of the large numbers attending these "Better-Farming Specials." The total attendance for the entire year was 42,024, and 338 addresses were delivered, 319 of which were by University officials.

Total attendance at Regular Institutes—10,855 at 106 sessions, as follows:—Men 5,087, Women 2,800, Boys 1,990, Girls 1,455, Teachers 120. Average attendance, 102 per session.

Total attendance at Train Institutes—31,169 at 71 stops, as follows:—Men 17,157, Women 7,604, Boys 3,009, Girls 2,273, Teachers 126. Average attendance, 438 per stop.

SPEAKERS FROM UNIVERSITY OF FLORIDA:—

A. A. Murphree, President, University of Florida.
P. H. Rolfs, Superintendent of Farmers' Institutes.
C. K. McQuarrie, Assistant Superintendent of Farmers' Institutes.
A. P. Spencer, Assistant in Extension Work.
J. M. Scott, Animal Industrialist, Agricultural Experiment Station.

A W. Blair, Chemist, Agricultural Experiment Station.
E. W. Berger, Nursery Inspector.
B. F. Floyd, Plant Physiologist, Agricultural Experiment Station.
S. E. Collison, Chemist, Agricultural Experiment Station.
John Belling, Assistant Botanist, Agricultural Experiment Station.
J. J. Vernon, Dean of College of Agriculture.
E. R. Flint, Professor of Chemistry.
J. M. Farr, Professor of English.
G. M. Lynch, Professor of Elementary Education.
Major W. L. Floyd, Professor of Botany and Horticulture.
H. E. Stevens, Plant Pathologist, Agricultural Experiment Station.
J. R. Watson, Entomologist, Agricultural Experiment Station.
O. F. Burger, Asst. Plant Pathologist, Agricultural Experiment Station.
C. L. Willoughby, Professor of Dairying and Animal Husbandry.
H. S. Fawcett, Plant Pathologist, Agricultural Experiment Station.

OTHER SPEAKERS:—

W. L. Bucholz, Supt. Public Instruction, Hillsboro County.
F. F. Bingham, Pensacola.
C. S. Bushnell, County President, Farmers' Union.
R. P. Burton, Sales Manager, Florida Citrus Exchange.
G. A. Danley, United States Demonstration Agent.
W. B. Hare, Arcadia.
J. O. Crews, Longbridge.
C. K. Allan, Supt. Public Instruction, Wakulla County.
H. H. Hume, Glen Saint Mary.
M. S. Knight, Lake City.
A. S. Meharg, State Agent, United States Farm Demonstration.
O. L. Mizell, Dukes, County Agent, United States Farm Demonstration.
A. J. Mitchell, Director Weather Bureau.
T. D. Owen, Chipley.
R. E. Rose, State Chemist.
E. H. Sellards, State Geologist.
J. L. Shepard, Greensboro.
C. H. Simpson, Milton.
R. W. Storrs, DeFuniak Springs.
G. W. Wiegand, Hilliard.
Edward Conradi, President, State College for Women.
R L. Turner, Supt. Public Instruction, Citrus County.
H. E. Savely, Field Agent, Farmers' Co-operative Demonstration Work, Washington, D. C.
O. H. Benson, Assistant in Demonstration Club Work, Washington, D. C.
Miss Susie V. Powell, State Agent Girls' Tomato Club, Mississippi.
H. L. Buckley, Professor of Biology, Ruskin College.
W. N. Conolly, Secy. Board of Trade, Live Oak.
Oswald Schreiner, Bureau Soils, Washington, D. C.
R. A. Young, Bureau Plant Industry, Washington, D. C.
Hiram Byrd, Asst. Health Officer, State Board of Health.
Joseph Y. Porter, Sec. State Board of Health.
W. A. Hendry, Perry.
J. D. Rooney, Asst. Industrial Agent, S. A. L. R. R.
R. E. Grabel, Farm Improvement Agent, G. S. & F. R. R., Charlotte, N. C.
Miss A. E. Harris, Director, Household Economics, State College for Women.
Jack Peters, Demonstration Agent, Lake County Improvement Association.

C. F. Dawson, State Veterinarian.
B. F. Bahnsen, Georgia State Veterinarian.
E. M. Nighbert, Expert in Tick Eradication, Washington, D. C.
J. W. Barber, President State Live Stock Association.
F. E. Waldrup, Field Agent, G. S. & F. Railroad.
W. B. Willetts, Maitland.
G. F. Ward, Winter Garden.
L. E. Dozier, Leesburg.
W. R. Newell, Leesburg.
E. H. Mote, Leesburg.
H. H. Duncan, Tavares.
P. M. Miller, Leesburg.
George N. Bressler, Tavares.
G. M. Wakelin, Tavares.

PRESIDENTS AND SECRETARIES OF LOCAL FARMERS' INSTITUTES

Alachua County—

Trenton: C. A. Williams, Pres.; R. H. Jones, Secy.
Bell: J. E. Williams, Secy.
High Springs: A. E. Summers, Pres.
Island Grove: J. R. Shaw, Pres.; H. M. Baker, Secy.

Baker County—

McClenny: W. C. Thompson, Pres.; Tait Powell, Secy.

Bradford County—

Lake Butler: O. L. Mizell, Pres.; H. W. Hodges, Secy.
Oak Grove: J. L. Blackwelder, Pres.; W. H. Kerse, Secy.
Providence: J. D. Stencil, Pres.; P. T. Taylor, Secy.
Brooks: W. H. Andrews, Pres.; T. L. Chaney, Secy.
Heilbron: J. D. McCormick, Pres.; J. E. J. Wainwright, Secy.
Worthington Springs: W. Williams, Pres.; T. B. Edwards, Secy.

Calhoun County—

Blountstown: W. H. Leonard, Pres.; C. L. Hobbs, Secy.

DeSoto County—

Arcadia: C. S. Bushnell, Pres.; W. P. Tucker, Secy.
Bowling Green: Irving Keck, Pres.; J. H. Parrish, Secy.
Lilly: W. B. Roberts, Pres.; J. H. Durrance, Secy.
Wauchula: T. G. Wilkerson, Pres.; T. S. Golden, Secy.
Venus: B. F. Johnson, Pres.; J. M. Frye, Secy.

Escambia County—

Whitmire School: R. E. Jones, Pres.; Mrs. M. H. Fairchild, Secy.
Myrtle Grove School: Mrs. E. M. Graves, Pres.; F. L. Thompson, Secy.
Cottage Hill: G. C. Hardie, Pres.; C. W. McDonald, Secy.
Gonzalez: L. W. Hardie, Pres.; C. J. Hudgins, Secy.

Gadsden County—

Greensboro: Hon. J. L. Shepard, Pres.; M. N. Smith, Secy.
Havana: A. J. Smith, Pres.; C. D. Wilcox, Secy.

Hamilton County—

Jennings: B. W. Wells, Pres.; B. J. W. Blair, Secy.

Hillsboro County—

Knight's Station: W. P. Campbell, Pres.; J. J. Bradford, Secy.
Riverview: W. T. Galloway, Pres.; Dr. Lewis Symmes, Secy.
Hopewell: Robert McDonald, Pres.; C. H. Buggs, Secy.
Ruskin: L. L. Dickman, Pres.; H. L. Buckley, Secy.

Holmes County—

Bonifay: J. McLaughlin, Pres.; W. A. Sessoms, Secy.

Jackson County—

Greenwood: W. B. Bryan, Secy.
Marianna: C. E. Pledger, Pres.; C. B. King, Secy.
Malone: B. H. Hatton, Pres.; E. E. Anderson, Secy.

LaFayette County—

Mayo: D. C. Geiger, Pres.; J. J. Handley, Secy.

Lake County—

Clermont: C. H. Wilson, Pres.; H. E. Cook, Secy.

Liberty County—

Bristol: Dr. E. K. Thagard, Pres.; D. H. Freeman, Secy.

Madison County—

Hickory Grove: Blake McLeod, Pres.; B. M. Williams, Secy.

Marion County—

Fort McCoy: H. W. Pilsbury, Pres.; Miss M. H. King, Secy.
Reddick: H. E. Tinker, Pres.; L. S. Light, Secy.
Morriston: Lauton Priest, Pres.; L. T. Hendris, Secy.
Summerfield: A. M. Buser, Pres.; H. R. L. White, Secy.

Nassau County—

Hilliard: J. H. Topper, Pres.; Geo. A. Kraemer, Secy.
Callahan: W. W. Cushing, Pres.; D. H. Petree, Secy.

Orange County—

Zellwood: C. H. Baker, Pres.; Wm. Edwards, Secy.
Cameron City: C. C. Worthington, Pres.; Miss Neva Gormley, Secy.
Taft: C. W. Tharp, Pres.; J. G. Barron, Secy.

Osceola County—

St. Cloud: F. P. Wentworth, Pres.; W. P. Lynch, Secy.

Pasco County—

Zephyrhills: O. E. Briggs, Pres.; U. G. Clark, Secy.

Pinellas County—

Largo: W. A. Belcher, Pres.; A. J. Kilgore, Secy.

Polk County—

Bartow: Dr. E. C. Conant, Secy.
Davenport: F. B. Hitchcock, Pres.; H. E. Sands, Secy.
Ft. Meade: R. W. Hancock, Pres.; Kline O. Varn, Secy.
Lakeland: Judge W. S. Preston, Pres.; Dr. W. H. Conibear, Secy.

Putnam County—

Mannville: H. T. Mann, Pres.

Santa Rosa County—

Milton: C. H. Simpson, Pres.; S. J. Harvey, Secy.
Baker: John Wilkerson, Pres.; J. L. Miller, Secy.
Allentown: R. T. Oglesby, Pres.; Oliver Jernigan, Secy.
Camp Walton: W. H. Hargrove, Pres.; F. P. Strong, Secy.

Suwannee County—

Live Oak: W. J. Hillman, Pres.; Jack Hawkins, Secy; W. N. Conolly, Secy. Board of Trade.

St. Johns County—

St. Johns Park: E. F. Warner, Secy.

Taylor County—

Perry: J. C. Calhoun, Sr., Pres.; W. A. Hendry, Secy.

Walton County—

Glendale: Wm. Murphy, Pres.; J. W. Henderson, Secy.
Knox Hill: N. A. McLeod, Pres.; J. L. King, Secy.

Wakulla County—

Sopchoppy: C. K. Allan, Secy.
Medart: C. B. Pigott, Pres.; T. B. Green, Secy.

Washington County—

Chipley: J. R. McColsky, Pres.; C. E. Pleas, Secy.
Lynn Haven: W. R. S. Burnett, Pres.; Frank McMullen, Secy.
Santa Rosa: W. M. Wilson, Pres.; A. B. Cessna, Secy.

FARM DEMONSTRATION WORK

In October 1911, the U. S. farm demonstration agents of Florida assembled at the University to attend a series of lectures by professors in the Extension Division, Agricultural Experiment Station, and College of Agriculture. A similar one-week course will be offered this fall.

Florida has one county agent in each of twenty-four counties. Each has been selected from among the farmers in the respective counties by the special agents of the United States Department of Agriculture, Washington, D. C. The special agents in charge believe that, if the county agents are to be leaders, they must be inspired and instructed for the particular work entrusted to them. They must have the spirit of initiative and sufficient information to carry out their plans.

The short course is planned to meet the needs of these workers, and should prove very valuable to the various counties, since the demonstration agents will carry back inspiration as well as some of the most important information on agriculture.

CO-OPERATION WITH COUNTY CROP IMPROVEMENT ASSOCIATIONS

The formation of County Crop Improvement Associations is, from the standpoint of agricultural development, a movement of great significance. The plan by which these are to be handled follows closely the suggestions of the Farmers' Institutes. Each local association plans to employ its own agricultural expert, whose duty it shall be to oversee the farming interests of his county, to visit and acquaint himself with as many farmers as is practicable, and be ready to offer suggestions and advice about their problems. For such information as he may not have, he shall call on the Agricultural Experiment Station or other reliable source. Such associations, organized in Lake, Suwannee and Escambia counties, have applied to the Extension Division for counsel and suggestions.

FIELD INSTRUCTION

There is an increasing demand from farmers for the assistance of an expert to go into the field and suggest methods of planting, tillage, and soils best adapted for certain crops. The Extension Division has been able to handle this only in a limited way; nevertheless, it is valuable work and should be encouraged. During the past two years this field instruction has been given in a few localities and made effective by having a number of farmers gather in one field in a centrally located community. It seems best to spend two days in a community, the second day to visit other farms to offer suggestions where needed. Such problems as farm drainage, best rotations, market conditions, or insect pests, can be discussed in a much better manner, when all of the facts are obtainable and the objects actually handled by the farmers themselves. The results of such Extension Work have been most encouraging.

FARMERS' INFORMATION

Hardly a day passes during the year that one or more visitors do not find their way to the Extension Offices in search of information about Florida, soils, fertilizers, crops

suitable for different localities, etc. It is the policy to give the latest and best information on the subjects, and when practicable to visit farm lands in question, and thereby encourage proper methods of agriculture.

A large percentage of the visitors in search of such information consists of out-of-state farmers who have recently purchased or intend to purchase land in Florida. When such visitors leave the Institution they have a more intelligent view of Florida conditions. With the additional aid of the Agricultural Experiment Station Bulletins to follow, and a personal acquaintance with the Staff, they can, by corrrespondence, avoid serious errors that would lead to discouragement and failure.

The farmers' correspondence is taken care of in a similar manner. A large part of the mail matter consists of requests for information on soils, crops, insect pests, fertilizers, sugar-cane, etc. These letters are answered by those best qualified in the subject, so that the inquirer may receive the best and most practical information.

At each Institute the farmers are urged to keep in touch with the Agricultural Experiment Station work, and to write for any needed information.

BOYS' CORN CLUBS AND GIRLS' GARDENING AND CANNING CLUBS

The Boys' Corn Clubs were started in 1910 as a co-operative enterprise between Dr. J. L. Kelley, School Superintendent of Alachua County, and the College of Agriculture. Mr. T. K. Godby, of Waldo, furnished free seed. During 1910 and 1911 the Farmers' Institute forces assisted in many of the meetings and during the latter year shared with Mr. Godby in furnishing seed.

In 1911 Mr. A. S. Meharg, State Agent Farmers' Co-operative Demonstration Work of the United States Department of Agriculture, started Boys' Corn Clubs in several counties where there were agents. In 1912 the *Girls' Gardening and Canning Clubs* were added.

The Boys' and Girls' Club Work for 1913 will be carried on in co-operation between the United States Depart-

ment of Agriculture, on the one hand, and the College of Agriculture of the University of Florida and the Department of Home Economics of the Florida State College for Women, on the other.

Boys and girls between ten and eighteen years of age are eligible to membership. Each boy is required to grow one acre of corn and each girl one-tenth acre of tomatoes and other vegetables. Various prizes are offered.

The awards for the boys are made upon the following basis:

		Per cent
1.	Greatest yield per acre	30
2.	Best exhibit of ten ears	20
3.	Best written account showing history of crop	20
4.	Best showing of profit on investment, based on the commercial price of corn	30
	Total	100

Richard Miller, of Baker, Santa Rosa County, won the State Championship in 1912, with a yield of 129¼ bushels of corn at a cost of 26 cents per bushel. He received in prizes a free trip to Washington, D. C., and fifty dollars cash, the latter being offered by H. G. Hastings & Company, Seedsmen, Atlanta, Georgia.

The awards for the girls are made upon the following basis:

		Per cent
1.	Quality	20
2.	Quantity	20
3.	Variety	20
4.	Profit	20
5.	History	20
	Total	100

It will be seen that the work is both practical and educational. There were nearly 100,000 members registered in the Boys' and Girls' Clubs in the Southern States in 1912. The purpose of the movement is too well known and its success too apparent to need further comment. The benefits are immediate and will also be cumulative. The movement has received generous support and assistance, due no doubt to its close touch with the home-life of our farmers.

All communications relating to the Boys' Corn Clubs should be addressed to J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida; relating to the Girls' Clubs, to Miss Agnes Ellen Harris, Director Department of Home Economics, Florida State College for Women, Tallahassee, Florida.

PUBLICATIONS

The publications of the Extension Division differ from the bulletins of the Agricultural Experiment Station only in that they are compiled from observations, or from publications that have been issued as Experiment Station Bulletins. Their main purpose is to meet pressing needs. To illustrate: a press bulletin on corn planting was issued just previous to the planting season of 1912. Farmers' Institute Bulletin No. 3, dealing with sixteen pertinent topics, has been in constant demand since it was issued, and, although 20,000 copies have been published, there is an insufficient number on hand to supply the requests this year. This bulletin is a series of articles on farm topics from members of the Extension Staff and the Experiment Station, and other authorities. Bulletin 112, on Tomato Insects, Root-knot and White-mold, was issued to meet a pressing demand for information by tomato growers.

The members of the Extension Staff contribute liberally to the public press, and disseminate much useful information in this way.

AGRICULTURAL EXPERIMENT STATION

STAFF

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

P. H. ROLFS, M.S.,
Director.

JOHN M. SCOTT, B.S.,
Animal Industrialist and Assistant Director.

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Plant Pathologist.

J. R. WATSON, A.M.,
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O. F. BURGER, M.S.,
Assistant Plant Pathologist.

S. S. WALKER, M. S.,
Assistant Chemist.

J. H. CARPENTER, B.S.*
Assistant Chemist.

JOHN SCHNABEL,
Assistant Horticulturist.

U. C. LOFTIN, B.S.,
Laboratory Assistant in Entomology.

J. B. GRIFFITH, B.S.,
Laboratory Assistant in Plant Pathology.

F. M. O'BYRNE, A.B.,
Laboratory Assistant in Plant Physiology.

MRS. G. E. PYLE,
Librarian.

*Temporarily engaged for special citrus work.

OBJECT.—The Agricultural Experiment Station is an institution founded by Congressional Act. The object of the Experiment Station is to acquire and diffuse useful agricultural knowledge. From the enacting clause, it is very clear that the intention of Congress was to establish with every agricultural college and university receiving the benefits of the original land-grant Act, an institution for purely investigational work. The Florida Experiment Station was founded in 1888, and has continued without interruption since that time. Since the funds are received from a Federal source, it becomes necessary to comply with the requirements of the Federal law. It should therefore be clearly understood that the Experiment Station fund is not intended, directly or indirectly, for teaching purposes, but for the purpose of acquiring new and important knowledge in regard to agricultural crops or agricultural soils. In order to receive the benefits of the Adams fund, it becomes necessary to plan the experiments and submit them to the Department of Agriculture at Washington for approval before any of the moneys are spent in the investigations.

PUBLICATIONS.—The publications of the Experiment Station are restricted to a report of the work done by members of the Experiment Station Staff. The printing of compilations and information of a general nature is not permissible under the funds.

We have three series of publications:

The Experiment Station Bulletins, each of which represents a more or less complete thesis on some particular line of work directly connected with the agriculture or horticulture of the State. In this series, 113 bulletins have been published. These are divided about equally between agriculture and horticulture. These bulletins must be issued as often as once in three months, and as many more times as may be thought advisable.

Press Bulletins are issued at short intervals, usually only a week elapsing between the different numbers. As the name indicates, these bulletins are prepared especially for the newspapers of the State. They announce new and important discoveries, and give other information directly

connected with the activities of the Experiment Station that is known to be of immediate importance to the agricultural and horticultural people of the State. Two hundred and five of these have been issued.

Reports to the Governor and to the Department of Agriculture are required annually. These contain a financial statement of the distribution of the funds of the year before; also a brief résumé of the work done by the Experiment Station as a whole, and by the various departments in detail. In addition to these brief reports, brief technical papers are also published in these annual reports, especially such results as come to hand and are not thought of sufficient importance to be printed as a bulletin. Twenty-two annual reports have been issued.

Over a million pieces of mail matter have been distributed under the Experiment Station frank.

LINES OF INVESTIGATION.—The work of the Florida Experiment Station is not sharply divided as to the different departments. The workers in the Experiment Station formulate what are known as projects. In these projects the work is carried out to the ultimate limits of the ability of the worker and the resources of the institution. A piece of investigation, once begun, is continued regardless as to whether its ramifications take it into one department or another. Not infrequently two or more departments are concerned in the solving of one project. Naturally, the lines of investigation fall into several departments: Horticulture, including plant breeding, plant introduction, propagation, etc.; Animal Industry, including the study of feed crops, the effect of feeding certain crops to cattle and hogs, and the growing of feed and forage crops; Agronomy, including the breeding of cotton, corn, and other farm crops; Plant Pathology, including the study of plant diseases produced by fungi and bacteria; Plant Physiology, including the study of plants as affected by fertilizer and soil conditions; Chemistry, including the study of fertilizers and soils, especially as to the effect on plants; Entomology, including the study of insecticides, insects, and their parasites.

RESOURCES.—The resources of the Experiment Station up to the present have been limited to the funds received from the Federal Government. The Hatch fund became available in 1888, from which $15,000 has been received annually. In 1906 a further appropriation of $5,000 became available from the Adams fund. This fund increased by $2,000 annually, until it has now reached its limit of $15,000, making a total annual income to the Experiment Station of $30,000. Only five per cent of this fund can be used for building purposes, and that only when the experiments require this to be done. None of the money can be used directly or indirectly for teaching purposes or for paying for holding Farmers' Institutes. The Experiment Station has been in the present location since January 1, 1907. Since that time the laboratories have had to be established in the new location, the fields for agricultural and horticultural work have had to be put into proper shape for experimentation, and other material has had to be collected.

NEW LABORATORY BUILDING.—The Legislature of 1907 appropriated $40,000 for the construction of a suitable laboratory building. This building was completed during the summer of 1910 and occupied during August. It affords suitable laboratories and offices for the staff of the Experiment Station and Extension Division. It is a three-story brick structure, containing about 18,000 square feet of floor space. This addition to the equipment is of great advantage to the State, since it increases the efficiency of all the workers—some to the extent of fifty per cent.

ADVANTAGES.—The advantages of having the Experiment Station located with the University can not be easily over-estimated. The fields and orchards used for experiment work are open to the inspection of students and visitors. An experiment field is very different from a demonstration field, inasmuch as no attempt is made to produce show crops or to do those things that a farmer can readily do for himself, but to discover unknown facts. The laboratories of the Experiment Station are planned and conducted for purely investigational work. This permits the student to observe and study the investigational laboratories, and

those who have special inclinations in the direction of the lines of investigation carried on have an opportunity to do some work in connection with the specialists.

The investigators in the Experiment Station at frequent intervals deliver popular and technical lectures either to the student-body as a whole or to special clubs and local organizations. This gives to the students an opportunity of listening to lectures of a more advanced nature in particular lines of investigation.

Minor positions, such as those of laboratory assistants in the Experiment Station, are open from time to time, and whenever practicable are given to graduates of the University who manifest ability in the special line of investigation. These laboratory assistants are paid a small salary for half of their time, and during the other half of their time they are free to take such studies in the University as will be of material advantage to them along the special line they wish to pursue.

PROJECTS.—Some of the more important projects as outlined for the Experiment Station work are as follows:

1. The comparison of the Florida velvet bean with bran, silage, and other feeds for milk production.
2. The comparison of home-grown roughage with the ordinary commercial roughage for producing milk.
3. The determination of the value of Florida-grown feeds for beef production.
4. The determination of the value of Florida-grown feeds for pork production.
5. The breeding of a thoroughbred long-staple cotton that will meet the requirements of the average market.
6. The breeding of legumes for larger crop production under Florida conditions, especially the Lyon and velvet beans, and cowpeas.
7. Corn breeding with a view of getting thoroughbred varieties that will produce true to type and produce larger yields.
8. The growing and breeding of citrus hybrids.
9. The citrus orchard, which ultimately should include all of the earlier and more hardy varieties of citrus fruits.
10. A vegetable garden in which tests are made of various vegetables, and breeding work conducted for the production of disease-resistant varieties.
11. Hardy fruit orchard in which occur new and promising but hitherto untested fruits.
12. Plant-testing plots. In this project occur over five hundred numbers of varieties of various kinds of economic plants that have not heretofore been tested in Florida. The seeds are obtained from all parts of the world, selections being made from those regions that are similar in climate to Florida.
13. The growing of forage crops useful for horses, cattle, and swine.

14. The making of a permanent pasture.

15. Soil and fertilizer studies. These include (a) a determination of the effect of certain combinations of fertilizing materials upon the pineapple plant as affecting the chemical composition of the plants and fruits, and physiological effects on the plants; (b) the effect of quantity and kind of chemicals applied to citrus trees; that is, their effect upon the composition of the leaves, wood, and fruit, and the physiological effect on the plants; (c) the effect of these same chemicals upon the soil to which they are applied; the loss of the plant-food, either through leaching, or by escaping as gaseous ammonia, or nitrogen.

16. Citrus diseases. This includes a technical study of diseases that have hitherto caused a great deal of loss in the citrus orchard, but have never been worked up from a technical standpoint, such as scaly bark, gumming, buck-skinning, stem-end rot, etc.

17. Citrus whitefly. This investigation consists in the study of the two principal species of whitefly that are pests in the citrus orchard; a study of the life histories, with a view of finding out the most vulnerable points at which they can be attacked; and a study of the natural enemies, together with a study of the best artificial means of controlling the pests.

18. Nutrition and mal-nutrition studies. This includes a study of plant foods, especially in their relation to citrus, and also a study of disorders that are apparently due to unfavorable soil or fertilizer conditions.

19. Among the recently introduced plants, which number several hundred, we find some that are extremely promising for the State. Rhodes Grass, a native of Central or South Africa, has done extremely well and has been tested in nearly every county of the State. It appears to make a permanent meadow-grass in almost all sections where it is grown on good agricultural land.

Among the leguminous plants that have been introduced from foreign countries the Yokohama velvet bean appears to fill an important niche. This is a native of Japan, and has been nearly unknown until within the last four years. At that time it was not even scientificially described. It is the earliest of the velvet bean family to ripen, requiring about 120 days of summer temperature. As it is resistent to root-knot and produces a large amount of protein forage early in the year, its use will mark an important advance in our forage production.

The Chinese velvet bean, of which a single seed was received three years ago, is another important leguminous crop. This is especially valuable since it ripens early enough in the fall to keep from being killed by frost, and also early enough to escape serious ravage by the velvet bean caterpillar. It appears to ripen early enough in the year to escape frost in any section of Florida.

The Lyon velvet bean was introduced from the Philippine Islands six years ago. This has proved to be extremely acceptable to a considerable number of farmers located in various parts of Florida. In general habit it resembles the Florida velvet bean.

20. During the year, 533 analyses of oranges and grapefruit have been made. These studies were undertaken to establish the relation of the ripening of these fruits to the season. In addition to these, studies of the variation due to different methods of cultivation, different kinds of fertilizers, different kinds of soil, and different varieties, were also taken up. The summary of this work, based on so large a number of analyses, will mark an important advance in our information on this, the leading crop in Florida.

OFFICE OF INSPECTOR OF NURSERY STOCK

E. W. BERGER, PH.D.
Professor of Entomology and State Inspector of Nursery Stock

The law (Chapter 6156, Laws of Florida) establishing a system of inspection, regulating the sale and exchange of nursery stock (trees, shrubs, vines, etc., and parts thereof) was passed by the State Legislature of 1911, and approved by the Governor on May 23, of that year. The law places the making of the rules and regulations for carrying into effect the purpose of the Act under the jurisdiction of the Board of Control. It provides for one Inspector and the necessary Deputies and Assistants, and that the Inspector's office shall be in the State Agricultural Experiment Station Building of the University.

The present Inspector, previously Entomologist of the Experiment Station, entered upon the duties of this office on July 1st, 1911. Besides the chief Inspector, ten Deputy Inspectors have been appointed. The duties of these, so far, have been wholly local, to make inspections of stock in the vicinity of the respective communities where they live.

The growing importance and need of the inspection of nursery stock offered for sale and exchange should be emphasized. Not only that, but the State needs a law governing the control of insect pests and diseases in groves and orchards. The man that buys a tree pays for a clean tree, free from insects and diseases; and the grower who realizes the need and importance of keeping injurious insects and diseases of trees under proper control should have recourse through the law enabling him to compel any careless or indifferent neighbors to keep under control any injurious insects and diseases, the presence of which upon his neighbors' premises serves as a source of infestation and infection. That a tree overrun with insects or infected with a disease is as much of a menace to the community of trees as a case of small-pox or yellow fever is to the community of human beings, is self evident; and the owners of orchards

and groves are certainly entitled to some protection for their trees. These facts indicate clearly that not only will the inspection and certification of nurseries have to be amplified by the gradual addition of more help to the inspection staff, but that men trained in a better knowledge of insects and diseases and the methods of control will be needed to inspect in the groves and orchards as soon as a grove and orchard pest law is passed.

The time is at hand when a better knowledge of insect pests and diseases and the methods of their control is needed in the grove, the orchard, and in the field. What does it profit a man if the whole world be made to bloom, and two blades of grass be made to grow where only one grew before, if, when the insects come and the diseases begin to ravage, he stands idly by unable to stem the tides of destruction? It is not enough to be able to grow a crop, but the grower must be prepared to protect the crop during an emergency, whether the same be frost or fire, or insects and diseases. To protect intelligently a crop against injurious insects and diseases requires a certain amount of technical knowledge, and there is no better place to get this than at the University. It is therefore urged that students in agriculture or horticulture, and others who expect to own or operate groves and orchards, now at the University, or who intend to come, take the courses offered along the lines indicated. Having grounded himself in the fundamental knowledge of insects and diseases, the student, as a prospective grower, whether owner, manager, foreman, or expert advisor for his community, knows better where, when, and how to look for tree troubles, how to investigate them for himself, and whether the problem is beyond him and needs the attention of the professional Entomologist, Plant Pathologist or Plant Physiologist; and he knows better how to adapt the known remedies to different localities. Seven years' experience in the State has taught the writer that there are comparatively few men who know how to spray for insects so as to get the best results. With the majority, the operation is a more or less hit-or-miss affair, because they have not the necessary knowledge of insects and dis-

eases to bring to bear upon their work, but are dependent upon prescriptions of so-called experts, or of real experts who, living at a distance, can spend only a little time at the locality where help is needed, or cannot make an examination, and may err because of insufficient knowledge of the conditions in the locality. The importance, therefore, of having men in each community who have at some time specialized on insects and diseases and the methods of their control, and whose general interests are more or less bound up with the welfare of that community is apparent.

That Florida has long been in need of a nursery inspection law will be conceded by all who are interested in its horticultural development. The further rapid spread of such pests as the Whitefly of citrus and San Jose Scale of peach and kindred trees, by means of infested nursery stock, is being rapidly lessened thereby. The danger of spreading broadcast by means of nursery stock such insects and diseases as Cottony Cushion Scale, California Red Scale, and the Scaly Bark Disease of citrus, all of which are at present localized, or limited in distribution to perhaps two counties, has been reduced to a minimum. By requiring stock shipped into Florida from other States to be inspected and certified (as other States have for some time been requiring of Florida nurserymen), the risk of receiving dangerous insects and diseases on nursery stock from other States is greatly lessened. The regulation requiring all stock from foreign countries brought into Florida to be inspected for dangerous insects and diseases has practically eliminated the danger of receiving any more foreign pests such as Whitefly, San Jose Scale, Cottony Cushion Scale, Mango Scale, and Guava Scale.

That the Inspector frequently has the opportunity to impart information on insects and diseases and to advise with nurserymen and others how best to eradicate them or check their increase, is an educational feature of the work worthy of consideration.

The advantages of having the Inspector's office located in the Agricultural Experiment Station Building at the University cannot be overestimated. The desirability of

now and then supplementing his own technical and practical information on insects and diseases of plants by consulting with other specialists across the hall or across the University Campus, is self evident. It saves time and adds to the efficiency of the service, by obviating the necessity of lengthy correspondence when in doubt about an insect or a disease. The General and Department Libraries of the University and Experiment Station contain many books, bulletins and other special papers on insects and diseases of plants, which it is frequently necessary and important to consult.

The publications of this office consist of Nursery Inspection Circulars intended to give information pertinent to the operation of the Law and Rules and Regulations, and other information intended to aid nurserymen and others in checking the spread of dangerous insects and diseases. Four circulars and one report have been published:

Circular 1 gives the Law with the Rules and Regulations.

Circular 2 is an announcement to the Press of the State.

Circular 3 gives Additional Rules and Regulations on the Mexican Cotton Boll Weevil, Mango Weevil, Irish Potatoes, Fruit Flies, and Exceptions to Rule 1 (Nursery Inspection Circular 1).

Circular 4 suspends Rules and Regulations, 34 to 38 (inclusive), on Irish Potatoes until April 1, 1913.

REGISTER

DEGREES, HONORS AND MEDALS
1911-1912

DEGREES IN COURSE

Master of Arts in Education

Macy, E. E. ..... Eau Gallie, Fla.

Bachelor of Arts

Miller, O. S. ..... Folkston, Ga.
Perkins, L. A., Jr. ..... Tallahassee, Fla.
Shackleford, R. W. ..... Tallahassee, Fla.

Bachelor of Science

Bryant, T. W. ..... Lakeland, Fla.
Davis, A. G. ..... Chipley, Fla.
Jacobson, J. E. ..... Jacksonville, Fla.
Kime, C. D. ..... Atlanta, Ga.

Bachelor of Science in Agriculture

Baker, A. A. ..... Thonotosassa, Fla.

Bachelor of Science in Education

Grace, G. J. ..... Graceville, Fla.

Bachelor of Science in Civil Engineering

Felton, T. D. ..... Oldtown, Fla.
Thomas, D. F ..... Gainesville, Fla.

Bachelor of Science in Electrical Engineering

Bamberg, C. S ..... Jasper, Fla.
Storter, N. S. ..... Everglade, Fla.

Bachelor of Laws

Buie, D. M. ..... Bell, Fla.
Cason, F. W. ..... Tampa, Fla.
Donnell, E. B. ..... Baton Rouge, La.
Ferrell, H. A. ..... Apalachicola, Fla.
Fields, W. P. ..... Hosford, Fla.
Harrison, W. T. ..... Parrish, Fla.
Keen, S. S. ..... Lake City, Fla.
King, R. ..... Jacksonville, Fla.
Mershon, M. L. ..... Gainesville, Fla.
Moon, C. M. ..... Kissimmee, Fla.
McMullen, M. A. ..... Largo, Fla.
Philips, A. E. ..... Fernandina, Fla.
Price, W. C. ..... Marianna, Fla.
Randell, R. W. ..... Madison, Fla.
Trantham, T. S. ..... Camden, S. C.
Walker, W. S. ..... Jacksonville, Fla.

PHI KAPPA PHI

Class of 1913

E. T. Casler ..... Arts and Sciences.
O. J. Clayton ..... Law.
J. B. Gibson, Jr. ..... Law.
C. W. Henderson ..... Arts and Sciences.
F. R. Hocker ..... Law.
B. G. Langston ..... Law.
S. Leitner ..... Arts and Sciences.
C. M. Phipps ..... Law.
A. G. Shands ..... Engineering.
H. V. Swartz ..... Agriculture.
A. Vidal ..... Engineering.
R. B. Wilson ..... Arts and Sciences.

Class of 1914

H. G. Clayton ..... Agriculture.
C. A. Martini ..... Agriculture.
H. A. Thalimer ..... Engineering.

MEDALS

Senior Oratorical Medal ..... R. W. Shackleford.
Junior Oratorical Medal ..... R. R. Taylor, Jr.
Declaimer's Medal ..... F. A. Kilgore.
Buckman Medal ..... T. D. Felton.
U. D. C. Medal ..... R. L. Goulding.

Marksman's Medals:
First ..... R. B. Wilson.
Second ..... L. T. Nieland.

ROLL OF STUDENTS

1912-1913

GRADUATE SCHOOL

Name and Institution	*Postoffice*	*State or County*
Baker, A. A., B. S. A. (University of Florida) Agriculture.	Thonotosassa	Hillsboro
Davis, A. G., B. S. (University of Florida) Chemistry.	Chipley	Washington
Fisher, C. M., B. S. (University of Florida) Engineering.	Gainesville	Alachua.
Guy, D. L., A. B. (Wofford College) Education.	McBee	S. Carolina.
King, R. L., B. S. A. (University of Florida) Agriculture.	Columbia	Alabama.
Kusano, Takeo, M. S. (University of Tokio) Horticulture.	Kagoshima	Japan.
Loftin, U. C., B. S. A. (North Carolina A. & M. College) Entomology.	Chapel Hill	N. Carolina.
Neal, M. L., A. B. (Emory College) Education.	Donnie	Alachua.
O'Byrne, F. M., A. B. (Miami University) Sociology.	Oxford	Ohio.

O'Haver, P. C., A. B. ----------Palatka ------Putnam.
(De Pauw University) Education.
Perkins, L. A., Jr., A. B. ----------Tallahasee ---Leon.
(University of Florida) Chemistry.

COLLEGE OF ARTS AND SCIENCES

Name	*Postoffice*	*State or County*
	Seniors	
Casler, E. T.	Jacksonville	Duval
Douglass, R. C.	Pensacola	Escambia
Elliott, W. G.	Tampa	Hillsboro
Henderson, C. W.	Tampa	Hillsboro
Jarrell, R. L.	Kissimmee	Osceola
Laffitte, L. S.	Lloyd	Jefferson
Leitner, Sumter	Kissimmee	Osceola
Morgan, L. R.	Arcadia	De Soto
Turbeville, G. H.	Meredith	Levy
White, R. R.	Starke	Bradford
Wilson, R. B.	Bartow	Polk
	Juniors	
Barrs, Newcomb	Gainesville	Alachua
Bird, T. B.	Monticello	Jefferson
Henderson, R. P., Jr.	Tampa	Hillsboro
Reynolds, W. H.	Lakeland	Polk
Swanson, T. J.	Gainesville	Alachua
Traxler, E. S.	Alachua	Alachua
Traxler, L. W.	Alachua	Alachua
Walker, R. N.	Auburndale	Polk
Williams, J. E.	Haskell	Polk
Williams, O. E.	Haskell	Polk
	Sophomores	
Barber, Bascom	Tallahassee	Leon
Beeler, P. R.	St. Petersburg	Pinellas
Brown, M. F.	Lawtey	Bradford
Campbell, A. D., Jr.	Chipley	Washington
Coarsey, J. M.	Tampa	Hillsboro
Embry, Wm. E.	Dade City	Pasco
Hartsfield, J. E.	Gainesville	Alachua
Hearin, J. L.	Quincy	Gadsden
Helm, E. B.	Miami	Dade
Horton, H. M.	Fort Pierce	St. Lucie
McElya, N.	Gasparilla	DeSoto
Platts, P. K.	White City	St. Lucie
Poppell, T. J.	New River	Bradford
Robertson, C. A.	Tallahassee	Leon
Taylor, Paul C.	Miami	Dade
Terry, R. P.	Lakeland	Polk
Yarbrough, T. T.	Miccosukee	Leon
	Freshmen	
Allsopp, W. V.	Weirsdale	Marion
Bishop, B. O.	Gainesville	Alachua
Blackman, Jos.	Graceville	Jackson

Name	Postoffice	State or County
Cone, A. J.	Raleigh	Levy
Glidewell, J. H.	Tampa	Hillsboro
Hartridge, Theo.	Jacksonville	Duval
Jackson, Andrew C.	Evinston	Alachua
Lang, Walter	Gainesville	Alachua
Lee, John C.	Leesburg	Lake
L'Engle, Frank	Jacksonville	Duval
McCall, T. E.	Jasper	Hamilton
Palmer, B. Y.	Marianna	Jackson
Powell, A. G.	Herndon	Pasco
Sullivan, C. H.	Red Rock	Santa Rosa
Taylor, W. H., Jr.	Greenwood	Jackson
Wadley, Fred B.	Cedar Keys	Levy
Weedon, F. R.	Tampa	Hillsboro
Wicker, H. W.	Coleman	Sumter
Wood, P. W.	Tampa	Hillsboro
York, Fred M.	Live Oak	Suwannee

Irregular

Feldman, J. R.	Hagerstown	Maryland
Groover, J. M.	Lakeland	Polk
Hawthorne, T. C.	Ocoee	Orange
Kilgore, F. A.	Orlando	Orange
Knowles, G. B.	Greenwood	Jackson
Mathison, B. V.	Gainesville	Alachua
Price, T. E.	Marianna	Jackson
Ray, W. O.	Gainesville	Alachua
Riley, E. L.	Jacksonville	Duval
Rosenthal, V. M.	Tampa	Hillsboro
Trammell, C. G.	Lakeland	Polk
Walker, Stanton	Jacksonville	Duval
Weimer, Paul E.	Lakeland	Polk

COLLEGE OF AGRICULTURE

Name	Postoffice	State or County
Seniors		
Davis, Foster G.	Ocklocknee	Leon
Swartz, H. V.	Sanford	Orange
Juniors		
Badger, D. M.	Minneapolis	Minnesota
Clayton, H. G.	Tampa	Hillsboro
Conant, H. G.	Minneapolis	Minnesota
Gist, J. F.	McIntosh	Marion
Grace, J. T.	Graceville	Jackson
Houghtaling, H. C.	Ft. Myers	Lee
Martini, C. A.	Van Wert	Ohio
Miller, J. A.	Independence	Missouri
Schulz, W. H.	Eau Claire	Wisconsin
Shaw, A. G.	Tampa	Hillsboro
Springer, J. R.	Pitman	New Jersey
Wilson, G. H.	Gainesville	Alachua

Name	*Postoffice*	*State or County*
	Sophomores	
Bryan, H. C.	Greenwood	Jackson
Harn, Sam P.	Mooresville	Alabama
Harris, J. H.	Orlando	Orange
Howell, Carl L.	Jacksonville	Duval
Jackson, Thos. U.	Lakeland	Polk
McDowall, C. D.	Gainesville	Alachua
McPherson, R. J.	Juniper	Gadsden
Rich, E. E.	Salisbury	Massachusetts
Schuette, O. T.	Chicago	Illinois
Tucker, J. R.	Gainesville	Alachua
	Freshmen	
Dukes, R. A.	Worthington	Bradford
Gunn, C. D.	Marianna	Jackson
Gleichman, Marcus	Largo	Pinellas
Grace, C. B.	Evinston	Alachua
Halma, Fred	Gainesville	Alachua
Jackson, T. L.	Phil Campbell	Alabama
Lord, H. N.	Fort Pierce	St. Lucie
Pancoast, B. K.	Pitman	New Jersey
	Irregular	
Darrow, J. A.	Jacksonville	Duval
Johnson, L. J.	Jacksonville	Duval
Livingstone, J. S.	Largo	Pinellas
Steil, F. H.	Sydney	Ohio
	Two-Year Course	
Aber, H. W.	Eustis	Lake
Baskin, J. H.	Gainesville	Alachua
Candler, W. A.	Clearwater	Pinellas
Carr, H. F.	Winter Haven	Polk
Edminster, W. C.	St. Augustine	St. John
Fielding, E.	Chicago	Illinois
Fridy, C. J.	Reddick	Marion
Glegg, G. D.	Ruskin	Hillsboro
Hawkins, W. R.	Oak Hill	Volusia
Helseth, C. E.	Viking	St. Lucie
Hill, J. Roy	Coleman	Sumter
Huelsbeck, George	Menasha	Wisconsin
Hunt, E. B.	Orlando	Orange
Kershaw, J. G.	Cocoa	Brevard
Means, D. L.	Fort White	Columbia
Murray, J. Carleton	Chattanooga	Tennessee
Neiland, F. C.	St. Johns	St. John
Neiland, L. T.	St. Johns	St. John
Owen, B. J.	Jacksonville	Duval
Swartz, C. R.	Gainesville	Alachua
	Four Months' Course	
Kloeber, L. E.	Chicago	Illinois
Link, A. M.	Los Angeles	California
Rahn, Wm. J.	Chicago	Illinois
Simmons, Arthur	Detroit	Michigan

Name	Postoffice	State or County
	Four Weeks' Course	
Burkett, W. P.	Dade City	Pasco
Duncan, R. W.	Frostproof	Polk
Johnson, B. B.	Perry	Taylor
Pease, H. N.	Delhi	New York
Wagner, S. M.	Inverness	Citrus
Williams, R. A.	Shady Grove	Taylor
Williams, W. A.	Shady Grove	Taylor

COLLEGE OF ENGINEERING

Name	Postoffice	State or County
	Seniors	
Brassell, C. J.	Tampa	Hillsboro
Macintosh, S.	London	England
Rowlett, C. A.	Palmetto	Manatee
Shands, A. G.	Gainesville	Alachua
Taylor, E. A.	Gainesville	Alachua
Thrasher, L. B.	Micanopy	Alachua
Vidal, A.	Gainesville	Alachua
	Juniors	
Becker, N. A.	Gainesville	Alachua
Cappleman, H. L.	Ocala	Marion
Crom, G. C.	Gainesville	Alachua
Crom, W. H.	Gainesville	Alachua
DeWinkeler, A.	Arch Creek	Dade
Hill, F. W. L.	Narcoossee	Osceola
LaRoche, C. C.	Cocoa	Brevard
McNeill, M. C.	Tallahassee	Leon
Parham, W. C.	Gainesville	Alachua
Price, J. C.	Warrenton	North Carolina
Riggins, L. W.	Lakeland	Polk
Swanson, F. M.	Gainesville	Alachua
Tenney, L. E.	Federal Point	Putnam
Thalimer, H. A.	DeFuniak Springs	Walton
White, D. L.	Citra	Marion
	Sophomores	
Bailey, U. C.	Gainesville	Alachua
Blount, U.	Lakeland	Polk
Dow, L. M.	St. Petersburg	Pinellas
Durrance, F. V.	Plant City	Hillsboro
Freeman, H.	Starke	Bradford
Hainlin, N. E.	Goulds	Dade
Hallowes, J. P.	Green Cove Springs	Clay
Hamilton, G. D.	Bartow	Polk
Hendry, H. F.	Fort Myers	Lee
Johnson, S.	DeFuniak Springs	Walton
Joyner, R. L.	Gainesville	Alachua
Peacock, A. J.	Bronson	Levy
Read, C. H. W.	Cedar Keys	Levy
Stephens, T. M.	Charlotte Harbor	DeSoto
Turnley, W. H.	Fort Meade	Polk
Ward, S. R.	Brooksville	Hernando
Whitmire, W. A.	Milton	Santa Rosa
Wicker, H. W.	Coleman	Sumter

Name	Postoffice	State or County
	Freshmen	
Bishop, R. M.	Gainesville	Alachua
Borland, N. T.	Floral City	Citrus
Collins, M. C.	Tallahassee	Leon
Davies, F. E.	Miami	Dade
Guerrant, H. P.	Umatilla	Lake
Hall, H. A.	Green Cove Springs	Clay
Little, J. P.	Lukens	Levy
Merritt, G. W.	Mulberry	Polk
Moseley, G. R.	Gainesville	Alachua
Nelson, G. E.	Dunedin	Pinellas
Prescott, F. L.	Starke	Bradford
Pulliam, S. E.	Bradentown	Manatee
Robinson, S. J.	Lady Lake	Lake
Sikes, J. F.	Punta Gorda	DeSoto
Spencer, L. P.	Palm Beach	Palm Beach
Towne, D. P.	Tampa	Hillsboro
	Irregular	
Blackman, S. A.	Brooklyn	New York
Horton, M. G.	Bradentown	Manatee
	Short Course in Mechanic Arts	
Halliday, E. C.	Fort Pierce	St. Lucie
Kendrick, G. F.	St. Augustine	St. John
Pounds, H.	Ocoee	Orange

COLLEGE OF LAW

Name	Postoffice	State or County
	Seniors	
Blackwell, J. L.	Live Oak	Suwannee
Brooks, Arthur C.	Lake Butler	Bradford
Christie, W. Mc.	Jacksonville	Duval
Clayton, O. J.	Aucilla	Jefferson
Cox, Boyd A.	Vernon	Washington
DeVane, E. C.	Plant City	Hillsboro
Diamond, C. P.	Cora	Santa Rosa
Garrett, G. P.	Kissimmee	Osceola
Gibson, J. B., Jr.	River View	Hillsboro
Godwin, J. L.	Lyons	Georgia
Hocker, F. R.	Ocala	Marion
Householder, E. F.	Manatee	Manatee
Kennedy, W. M.	Umatilla	Lake
Langston, B. G.	Chipley	Washington
Lawler, S. W., Jr.	Tallahassee	Leon
Lischkoff, L. N.	Pensacola	Escambia
Magaha, Ernest M.	Jay	Santa Rosa
Mathis, Bascom	Bonifay	Holmes
McCaskill, M. C.	Plant City	Hillsboro
Miller, O. S.	Folkston	Georgia
Phipps, C. M.	Terra Cela	Manatee
Riculfi, R. M.	Jacksonville	Duval
Riherd, Frank	Glasgow Junction	Kentucky

Name	Postoffice	State or County
	Juniors	
Alexander, L. W.	Jacksonville	Duval
Arnold, A. C.	Jacksonville	Duval
Bishop, W. B.	Aucilla	Jefferson
Blackman, W.	Winter Park	Orange
Broward, Montcalm	Fort George	Duval
Buie, A. P.	Bell	Alachua
Bullock, J. R.	Ocala	Marion
Futch, L. E.	St. Petersburg	Pinellas
Henderson, R. A.	Ft. Myers	Lee
Hill, W. L.	Gainesville	Alachua
Jackson, Geo. Wm.	St. Augustine	St. John
Knight, A. W.	Jacksonville	Duval
Owens, Frank E.	Eustis	Lake
Perry, P. R.	St. Augustine	St. John
Poppell, J. C.	Starke	Bradford
Peterson, J. H.	Lakeland	Polk
Phillips, F. D.	Meredith	Levy
Ray, T. C.	Marianna	Jackson
Robbins, R. P.	Titusville	Brevard
Ross, D. W.	Tampa	Hillsboro
Sibthorpe, H. K.	Lutz	Hillsboro
Shackleford, R. W.	Tallahassee	Leon
Smith, T. H.	Marianna	Jackson
Sutton, J. B.	Lakeland	Polk
Taylor, R. R., Jr.	Miami	Dade
Welch, C. L.	Tampa	Hillsboro
Wiggins, E. E.	Hawthorne	Alachua
Williams, R. J.	Gainesville	Alachua
Wilson, C. L., Jr.	Marianna	Jackson
Wilson, M. R.	Palmetto	Manatee

THE TEACHERS' COLLEGE

Name	Postoffice	State or County
	Post Graduates	
Guy, D. L.	McBee	South Carolina
Neal, M. L.	Donnie	Alachua
O'Haver, P. C.	Palatka	Putnam
	Seniors	
Blanton, R. S.	Plant City	Hillsboro
	Juniors	
Goulding, R. L.	Pensacola	Escambia
Mason, F. R.	MacClenny	Baker
	Sophomores	
Chute, Aubrey	Harper	Santa Rosa
DeWolf, H. L.	Crescent City	Putnam
Embry, W. E.	Dade City	Pasco
	Freshmen	
Blackburn, L. L.	Gainesville	Alachua
Crews, Harold	Zolfo	DeSoto
Stripling, A. E.	Westville	Holmes

Name	*Postoffice*	*State or County*
	Irregular	
Gillis, S. D.	Bristol	Liberty
	Normal School	
Durham, J. F.	Blountstown	Calhoun
Hollingsworth, C. I.	Ft. Meade	Polk
Wilson, W. D.	Westville	Holmes
Wolf, S. A.	Jay	Calhoun
	Spring Review	
Adams, B. D.	Hampton	Bradford
Bennett, S. N.	Moultrie	St. John
Cogburn, P. H.	Cottondale	Jackson
Durrance, Oscar L.	Arcadia	DeSoto
Hardee, E. C.	Trenton	Alachua
Kight, A. A.	Center Hill	Sumter
Mercer, L. P.	Zolfo	DeSoto
Miles, F. D.	Darlington	Walton
Odom, E. S.	McLellan	Santa Rosa
Robinson, T. R.	Milton	Santa Rosa
Ward, S. R.	Bonifay	Holmes
	Subfreshmen	
Allsopp, R. J.	Weirsdale	Marion
Armstrong, Percy B.	Terra Ceia	Manatee
Baker, Paul	Plant City	Hillsboro
Booth, J. R.	Safety Harbor	Pinellas
Boyer, R. Z.	Gainesville	Alachua
Broward, Montcalm, Jr.	Fort George	Duval
Byers, Wm. L.	Gainesville	Alachua
Cannon, E. F.	Gainesville	Alachua
Carter, R. B.	Marianna	Jackson
Dees, L. P.	Mayo	Lafayette
Doolittle, John C.	Centralia	Hernando
Felton, O. Y.	Mayo	Lafayette
Harold, Chester	Gainesville	Alachua
Hatcher, W. O.	Worthington Springs	Bradford
Hester, Harvey S.	Tampa	Hillsboro
Hilton, T. H.	Melrose	Alachua
Hodgson, W. M.	Tampa	Hillsboro
Hyde, D. B.	Jacksonville	Duval
Johnson, C. L.	Wildwood	Sumter
Lee, Robt. E.	Gainesville	Alachua
Liddon, Chas. C.	Marianna	Jackson
Liddon, Herbert C.	Marianna	Jackson
Long, Clifton W.	Mayo	Lafayette
Lowe, Paul R.	Anona	Pinellas
McAlpin, Ira M.	Mayo	Lafayette
McMullen, H. L.	Clearwater	Pinellas
McMullen, P. R.	Largo	Pinellas
Marshburn, Frank B.	Bronson	Levy
Miller, G. H.	Hagerstown	Maryland
Stringfellow, G. P.	Lady Lake	Lake
Solomon, B. L.	Marianna	Jackson
Vidal, Pierre	Gainesville	Alachua

Name	*Postoffice*	*State or County*
Williams, Ben S.	Gainesville	Alachua
Wood, Harry E.	Evinston	Alachua
Wyckoff, J. S., Jr.	Citra	Marion
Zetrouer, H. F.	Rochelle	Alachua

SUMMARY

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College of Arts and Sciences	71
College of Agriculture	67
College of Engineering	61
College of Law	53
Teachers' College and Normal School	28
	291
Subfreshman Class	36
Total	327
Counted twice	6
Net Total	321

SUMMARY BY STATES AND COUNTRIES

Alabama	3
Austria	1
California	1
England	1
Georgia	2
Illinois	4
Japan	1
Kentucky	1
Maryland	1
Massachusetts	1
Michigan	1
Minnesota	2
Missouri	1
New Jersey	2
New York	2
North Carolina	2
Ohio	3
South Carolina	2
Tennessee	1
Wisconsin	2
Florida	287
Total	321

SUMMARY BY COUNTIES

Alachua	48
Baker	1
Bradford	9
Brevard	3
Calhoun	1
Citrus	2
Clay	2
Columbia	1
Dade	6
DeSoto	7
Duval	16
Escambia	3
Gadsden	2
Hamilton	1
Hernando	3
Hillsboro	25
Holmes	4
Jackson	16
Jefferson	4
Lafayette	4
Lake	7
Lee	3
Leon	9
Levy	8
Liberty	1
Manatee	7
Marion	9
Orange	7
Osceola	4
Palm Beach	1
Pasco	2
Pinellas	11
Polk	20
Putnam	3
St. John	7
St. Lucie	5
Santa Rosa	8
Sumter	4
Suwannee	2
Taylor	3
Volusia	1
Walton	3
Washington	4
Florida	287
Other States and Countries	34
Total	321

ALUMNI ASSOCIATION

President—B. R. COLSON, Gainesville, Fla.
Vice-President—N. S. Storter, Everglade, Fla.
Secretary and Treasurer—J. W. Blanding, Gainesville, Fla.

At the close of the commencement exercises in 1906 the graduates of that year organized the Alumni Association.

All graduates of the Institution *and those graduates of the former State institutions who have their diplomas confirmed by the University* are eligible to membership in the Association; and the example of the first class in joining in a body should be followed by all succeeding classes. Information concerning the Association may be had by addressing any of the above officers.

1906

Blanton, R. S. ---------L.I.
Student, University of Florida.
Davis, D. D. ---------L.I.
Principal Seabreeze School, Seabreeze, Fla.
Evans, A. C. ---------B.A.
Lieutenant, U. S. A.
Evans, R. J.----------B.A.
Physician, Jacksonville, Fla.
Ferran, C. H. ---------M.A.
Pastor of Presbyterian Church, DeLand, Fla.
Floyd, W. L. ---------M.S.
Professor of Botany and Horticulture, University of Florida, Gainesville, Fla.
Greene, E. P. ---------B.S.
Stock Feed Chemist, State Department of Agriculture, Tallahassee, Fla.
Henry, A. M. ---------B.S.
Food and Drug Chemist, State Department of Agriculture, Tallahassee, Fla.
Jenkins, I. C. ---------M.A.
Pastor Methodist Church, Lakeland, Fla.
Miller, J. B. ----------L.I.
Munsell, W. A. -------B.S.
Veterinary Student, Cornell University, Ithaca, N. Y.
*Rivers, C. O. ---------B.S.
Lawyer, Lake City, Fla.
Rowlett, W. M., Jr. ---B.S.
Physician, Tampa, Fla.
Weller, Frank ---------B.S.
Civil Engineer, West Palm Beach, Fla.
Woodberry, H. S.------ B.A.
Medical Student, University of Virginia, Charlottesville, Va.

*Deceased.

1907

Gunter, Herman ------B.S.
Assistant State Geologist, Tallahassee, Fla.
Morcman, M. L. ------B.S.
Lawyer, Jacksonville, Fla.
Nielsen. A. R. --------B.S.
Veterinary Surgeon, Lehigh, Iowa.
Tompkins, C. A. -----B.S.
Jeweler, Lake City, Fla.

1908

Cason, T. Z. ---------B.S.
Medical Student, University of Georgia, Athens, Ga.
Carter, P. J. ---------B.S.
Medical Student, Tulane University, New Orleans, La.
Earman, J. B. --------B.S.
Dentist, Tampa, Fla.
Fawcett, H. S. ------M.S.
Plant Pathologist, State Commission of Horticulture, Sacramento, Cal.
Fisher, C. M. --------B.S.
Student, University of Florida, Gainesville, Fla.
Gammon, J. E. -------B.S.
Persons, R. F. --------A.B.
Southern Weighing Bureau, Jacksonville, Fla.
Shands, J. S. ---------B.A.
Secretary and Treasurer Gainesville Hardware Co.

1909

Ames, G. B. ----------B.S.E.E.
Tallahassee, Fla.
Chapin, R. S. ---------B.S.E.E.
Third Lieutenant, Philippine Constabulary.
Gibbs, W. W. --------B.S.C.E.
Civil Engineer, Nichols, Fla.
Kay, Raymond -------B.A.
Law Student, Harvard University.
Larson, Charles ------B.S.E.E.
Florida Electric Co., Jacksonville, Fla.
Martin, W. B. --------B.A.
Taylor, A. H. --------B.S.E.E.
Scientific Assistant, Bureau of Standards, Washington, D. C.
Wilson, F. T. --------B.S.
Assistant in Agriculture, Clemson College, S. C.
Wilson, R. N. --------M.S.
Professor of Chemistry, Trinity College, Durham, N. C.
Winters, R. Y. --------M.S.
Instructor in Horticulture, Cornell University.

1910

Barco, E. T. ----------A.B.
Lieutenant, Constabulary, Philippine Islands.

Calhoun, E. C. --------LL.B.
Lawyer, Perry, Fla.

Cappleman, D. E. -----A.B.
Lieutenant, Constabulary, Philippine Islands.

Hardee, L. P. --------LL.B.
Lawyer, Gainesville, Fla.

Helm, Roy ----------A.B.
Rhodes Scholar, Oxford University, England.

McMillan, J. C. -------B.S.
Lieutenant, Constabulary, Philippine Islands.

Rader, R. D. ---------B.S.C.E.
Lieutenant, Constabulary, Philippine Islands.

Small, C C. ----------LL.B.
Lawyer, Lake City, Fla.

Steffee, J. B. ---------B.S.
Lieutenant, Constabulary, Philippine Islands.

Thompson, H. L. ------B.S.C.E.
Civil Engineer, Gainesville, Fla.

1911

Burger, O. F. --------M.S.
Assistant Plant Pathologist, Experiment Station, University of Florida, Gainesville, Fla.

Carter, S. L., Jr. -----LL.B.
Lawyer, Gainesville, Fla.

Christian, W. E. ------B.S.
Merchant, McIntosh, Fla.

Crews, A. S. ---------LL.B.
Lawyer, Starke, Fla.

Crocker, O. ----------LL.B.
Lawyer, Vernon, Fla.

Drane, O. W. --------B.S.E.E.
Engineer, Lakeland, Fla.

Epperson, C. C. -------LL.B.
Lawyer, Williston, Fla.

Frei, F. J. ----------B.S.E.E.
Apprentice, General Electric Co., West Lynn, Mass.

Green, F. ----------LL.B.
Lawyer, Bushnell, Fla.

Hilton, W. B. ---------A.B. in Education.
Kissimmee, Fla.

Howard, G. L. --------B.S.
Merchant, Madison, Fla.

Huffaker, R. B. -------LL.B.
Lawyer, Bartow, Fla.

Hunter, J. P. ---------B.S.C.E.
Civil Engineer, West Palm Beach, Fla.

Johnston, R. G. ------LL.B.
Lawyer, Kissimmee, Fla.

King, R. L. ----------B.S.A.
Assistant in Agronomy, University of Florida.

Langston, B. G. ------A.B.
Law Student, University of Florida.
Lester, J. L. ---------LL.B.
Lawyer, Key West, Fla.
Macy, E. E. ----------A.B. in Education.
Supt. of Public Instruction, Brevard County, Fla.
May, P. S. ----------A.B.
Business Student, Jacksonville, Fla.
Osborne, H. P. -------LL.B.
Lawyer, Jacksonville, Fla.
Overman, C. H. ------B.S.C.E.
Civil Engineer, Pensacola, Fla.
Perry, D. S. ----------B.S.C.E.
Civil Engineer, Leesburg, Fla.
Roland, A. M. --------LL.B.
Lawyer, Live Oak, Fla.
Sealey, R. M. --------A.B. in Education.
Principal High school, Ft. Myers, Fla.
Shands, J. W. --------A.B.
Student, Columbia University, N. Y.
Soar, I. E. ----------B.S.A.
County Demonstrator, Dade City, Fla.
Stewart, C. Q. -------LL.B.
Lawyer, Ft. Myers, Fla.
Surrency, W. H. ------LL.B.
Lawyer, Jacksonville, Fla.
Wade, L. E. ----------LL.B.
Lawyer, Jacksonville, Fla.

1912

Baker, A. A. ---------B.S. in Agriculture.
Agricultural Student, University of Florida.
Bamberg, C. S. -------B.S.E.E.
South Georgia Power and Light Co., Waycross, Ga.
Bryant, J. W. --------B.S.
Teacher, Lakeland, Fla.
Buie, D. M. ----------LL.B.
Lawyer, Newberry, Fla.
Cason, F. W. ---------LL.B.
Lawyer, Miami, Fla.
Davis A. G. ----------B.S.
Assistant in Chemistry, University of Florida.
Donnell, E. B. --------LL.B.
Lawyer, Jacksonville, Fla.
Felton, J. D. --------B.S.C.E.
Civil Engineer, Phosphate Mining Co., Nichols, Fla.
Ferrell, H. A. -------LL.B.
Lawyer, Appalachicola, Fla.
Fields, W. P. --------LL.B.
Lawyer, Appalachicola, Fla.
Grace, G. J. ----------B.S. in Education.
High School Teacher, Graceville, Fla.

Harrison, W. J. ------LL.B.
Lawyer, Palmetto, Fla.
Jacobson, J. E. -------B.S.
Law Student, Columbia University, N. Y.
Keen, S. S. ----------LL.B.
Lawyer, Lake City, Fla.
Kime, C. D. ----------B.S.
Farmer, Lakeland, Fla.
King, R. ----------LL.B.
Lawyer, Jacksonville, Fla.
Macy, E. E. ---------M.A. in Education.
Supt. of Public Instruction, Brevard County, Fla.
Mershon, M. L. -------LL.B.
Lawyer, Leesburg, Fla.
Miller, O. S. ---------A.B.
Law Student, University of Florida.
Moon, C. M. ----------LL.B.
Lawyer, Atlanta, Ga.
McMullen, M. A. ------LL.B.
Lawyer, Largo, Fla.
Perkins, L. A., Jr. ----A.B.
Student, University of Florida.
Philips, A. E. --------LL.B.
Commercial Traveler, Appalachicola, Fla.
Price, W. C. ----------LL.B.
Lawyer, Marianna, Fla.
Randell, R. W. --------LL.B.
Lawyer, Lawtey, Fla.
Shackleford, R. W.----- A.B.
Law Student, University of Florida.
Storter, N. S. --------B.S.E.E.
Engineer, Miami, Fla.
Thomas, D. F. -------B.S.C.E.
Civil Engineer, Gainesville, Fla.
Trantham, J. S. ------LL.B.
Lawyer, Tallahassee, Fla.
Walker, W. S. --------LL.B.
Lawyer, Jacksonville, Fla.

The following graduates of former State institutions have had their diplomas confirmed by the University and are members of the Association:

EAST FLORIDA SEMINARY

Arnold, Robertson T. ----------Jacksonville, Fla.
Barco, Dwight N. ----------Arcadia, Fla.
Baxter, Estes George ----------Gainesville, Fla.
Blanding, A. H. ----------Juliette, Fla.
Blanding, John W. ----------Gainesville, Fla.
Burnette, J. Fletcher ----------Gainesville, Fla.
Byles, George A. ----------Windsor, Fla.
Campbell, Thomas S. ----------Brazil, Indiana.

Cornwell, Arthur T. (Rev.) ----------Bradentown, Fla.
Davis, J. R. ----------Starke, Fla.
Dutton, Henry F. ----------Gainesville, Fla.
*Evins, Rob C. ----------McIntosh, Fla.
Graham, A. ----------Cleveland, Ohio.
Grether, Ralph D. ----------Jacksonville, Fla.
Herzog, Alva L. ----------Savannah, Georgia.
Hill, Sumter B. ----------Maitland, Fla.
Huffman, Roy E. ----------Gainesville, Fla.
Ingersoll, Robert N. ----------Springfield, Mass.
Jacobie, Ollie M. ----------Tallahassee, Fla.
Jones, William A. ----------Lawtey, Fla.
Levy, Sol A. ----------Baltimore, Md.
Lovell, C. P. (Col.) ----------Jacksonville, Fla.
Lykes, F. E. ----------Havana, Cuba.
Lynch, Chas. M. ----------Birmingham, Ala.
Maas, Solomon ----------Tampa, Fla.
*Merchant, James R. ----------Gainesville, Fla.
Merchant, Thomas C. ----------Madison, Fla.
Milam, B. R. ----------Jacksonville, Fla.
Moore, Samuel W. ----------Brazil, Indiana.
Person, Weldon E. (Dr.) ----------Atlanta, Georgia.
Richard, H. C. ----------Starke, Fla.
Roux, Fred S. ----------Floral City, Fla.
Shaylor, J. Douglas ----------Jacksonville, Fla.
Shaylor, Samuel T. ----------Jacksonville, Fla.
*Stillman, John E. ----------Pensacola, Fla.
Thomas, S. J. ----------Denver, Colorado.
Venable, V. D. ----------Farmville, Virginia.
West, Byron McG. ----------Jacksonville, Fla.
Whitaker, Charles C. ----------Tampa, Fla.
Whitney, William T. ----------Plant City, Fla.
Zewadski, William K., Jr. ----------Ocala, Fla.

FLORIDA STATE COLLEGE AND THE SEMINARY WEST OF THE SUWANNEE RIVER

Belcher, Burton ----------Quincy, Fla.
Buchholz, Frederick William ----------Tampa, Fla.
*Clark, Asa B. ----------Quincy, Fla.
Cook, David M. ----------Tampa, Fla.
Day, Gaston (M.D.) ----------Jacksonville, Fla.
Fleming, Francis P., Jr. ----------Jacksonville, Fla.
Harrison, Alex. P. (Dr.) ----------Sykesville, Md.
Hopkins, R. P. ----------Live Oak, Fla.
Love, E. C. ----------Quincy, Fla.
Love, James D. (Dr.) ----------Jacksonville, Fla.
McCord, Robert B. ----------Atlanta, Georgia.
Meginnis, B. A. (Judge) ----------Tallahassee, Fla.
Papy, L. G. ----------Bainbridge, Ga.
Perkins, Geo. B. ----------Tallahassee, Fla.
Randolph, James H. (Dr.) ----------Jacksonville, Fla.
Shackleford, T. M., Jr. ----------Tampa, Fla.
Shutan, Arthur J. ----------Chicago, Ill.

* Deceased.

Van Brunt, R. W. ----------Chipley, Fla.
Whitfield, Louis T. ----------Tallahassee, Fla.
Winthrop, Francis B. ----------Tallahassee, Fla.
Winthrop, Guy L. ----------Blacksburg, S. C.

FLORIDA AGRICULTURAL COLLEGE AND UNIVERSITY OF FLORIDA

Alexander, Gary W. ----------Jacksonville, Fla.
Bridges, Benj. H. ----------Tallahassee, Fla.
Brown, Maximus M. ----------Macclenny, Fla.
Burton, John W. ----------Arcadia, Fla.
Butler, David S. ----------Pecos, Texas.
Chalker, Roy L. (M.D.) ----------Lake City, Fla.
Cone, H. I. (Rear Admiral) ----------Washington, D. C.
Curry, Chester M. ----------Key West, Fla.
Curry, Chas. T. ----------Bradentown, Fla.
Davis, Chas. A. ----------Madison, Fla.
Donk, Marion G. ----------Washington, D. C.
Drumwright, E. B. ----------Tampa, Fla.
Fleming, Sam T. ----------Archer, Fla.
Flournoy, Wm. W. ----------DeFuniak Springs, Fla.
Futch, Jas. E. ----------Starke, Fla.
Getzen, J. C. ----------Webster, Fla.
Getzen, L. G. ----------Fort White, Fla.
Heimburger, L. ----------Tallahassee, Fla.
Humphreys, Ralph W. ----------Lincolnton, Ga.
Ives, H. A. (M.D.) ----------Jacksonville, Fla.
Ives, Washington M. (M.D.) ----------Lake City, Fla.
Jackson, A. M. (Dr.) ----------Lakeland, Fla.
Jackson, William K. ----------Ancon, Canal Zone.
Keller, Eustis E. ----------Malvern, Pa.
McKean, Geo. R. ----------Tampa, Fla.
Maguire, Chas. H. ----------Jacksonville, Fla.
Maguire, Thos. C. (Dr.) ----------Plant City, Fla.
Mann, Murton ----------Rochester, N. Y.
Miller, Arthur S. ----------High Springs, Fla.
Mitchell, J. T. ----------Attapulgus, Ga.
Mitchell, Wm. H. (Dr.) ----------Brundidge, Ala.
Morgan, Irvin ----------Jacksonville, Fla.
Nielson, T. A. ----------East Rutherford, N. J.
Oliver, Francis M. ----------Savannah, Ga.
Palmer, G. O. (Hon.) ----------Lake City, Fla.
Pattillo, L. T. (Dr.) ----------Atlanta, Ga.
Pattishall, D. F. ----------Plant City, Fla.
Quaintance, A. L. ----------Washington, D. C.
Rogers, William S. ----------Kiowa, Oklahoma.
Rowe, R. H. (Hon.) ----------Madison, Fla.
Smith, W. Wesley ----------New Smyrna, Fla.
Stringer, Fred L. ----------Brooksville, Fla.
Thompson, Thos. C. (M.D.) ----------Jacksonville, Fla.
Waugh, B. H. ----------Adairsville, Ga.
Waugh, H. B. ----------Atlanta, Ga.
Whetstone, G. M. ----------Plant City, Fla.
Williams, J. W. ----------Tampa, Fla.
Yocum, Wilbur E. ----------Washington, D. C.

FLORIDA STATE NORMAL SCHOOL

Andrews, Chas. O. ----------DeFuniak Springs, Fla.
Boutell, George H. ----------Bradentown, Fla.
Buie, Robert E. L. ----------Birmingham, Ala.
Calhoun, John M. ----------Marianna, Fla.
Campbell, Angus G. ----------DeFuniak Springs, Fla.
Gillis, J. McL. ----------Pensacola, Fla.
Hollowell, Alonzo ----------Jacksonville, Fla.
Jernigan, Walter B. ----------Jay, Fla.
Jones, J. A. ----------Sumterville, Fla.
McMullen, E. W. (Prof.) ----------Sutherland, Fla.
Moore, John L. ----------Nashville, Tenn.
Parrish, Marion A. ----------Sampson, Ala.
Plank, Finise E. ----------DeLand, Fla.
Reeves, L. J. (Hon.) ----------Pensacola, Fla.
Stephens, G. A. ----------Palatka, Fla.
Walker, J. Hurd ----------Hagerstown, Md.
Watson, W. H. ----------Pensacola, Fla.

SOUTH FLORIDA MILITARY AND EDUCATIONAL INSTITUTE

Angle, A. J. ----------Bartow, Fla.
Barnes, B. F. (Dr.) ----------River Junction, Fla.
Bell, J. Walter ----------Oxford, Fla.
Boyd, Walter L. ----------Bartow, Fla.
Bradley, R. R. ----------Atlanta, Ga.
Bunker, Walter E. ----------Dade City, Fla.
Butler, Hartman L. ----------Ft. Logan, Colorado.
Colson, Barnard R. ----------Gainesville, Fla.
Fryer, Richard H. ----------Sumatra, Fla.
Garrison, John S. ----------Mobile, Alabama.
Haskins, Harold C. ----------Sanford, Fla.
Helton, LeRoy W. ----------Live Oak, Fla.
Herring, J. A. ----------Tampa, Fla.
Jernigan, E. H. ----------Noma, Fla.
Jordan, Adrian C. ----------Punta Gorda, Fla.
Langford, Wm. C. ----------Arcadia, Fla.
Law, E. A. (Dr.) ----------Bartow, Fla.
Loman, Augustus W., Jr. ----------Seattle, Washington.
Lowe, Virgil S. ----------Key West, Fla.
McArthur, Frank D. ----------Birmingham, Ala.
McMullen, William A. ----------Tampa, Fla.
Malsby, James W. ----------Columbus, Ohio.
Mountien, Chas. S. ----------Ashford, Alabama.
Nickerson, P. C. ----------Jacksonville, Fla.
Parish, Chas. W. ----------Parish, Fla.
Paxton, L. R. ----------Rockledge, Fla.
Prevatt, J. O. ----------Jacksonville, Fla.
Pherigo, James L. ----------Kansas City, Missouri.
Smith, Hugh G. ----------Dothan, Alabama.
Stephens, Phinehas V. ----------New York City.
Whitner, Arthur R. ----------Ft. D. A. Russell, Wyo.
Wilson, Cullen B. ----------Bartow, Fla.
Wilson, Melville A. ----------Sarasota, Fla.
Wilson, Milton D. ----------Bartow, Fla.
Wilson, Bradley C. ----------Bartow, Fla.
Wirt, Earl L. ----------Bartow, Fla.

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CIRCULAR 6 JUNE, 1913

UNIVERSITY OF FLORIDA
Office of Inspector of Nursery Stock
GAINESVILLE

The Mexican Cotton Boll Weevil

BY
E. W. BERGER

Fig. 1—Weevils Feeding on Boll. Slightly magnified.
(From Bul. No. 51, Bur. Ent., U. S. Dept. Agric.)

Issued under the direction of the Board of Control by the Inspector of Nursery Stock

Copies of this Circular may be obtained free by addressing the Inspector of Nursery Stock, Experiment Station Building, Gainesville, Fla.

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SUMMARY

1. Improvement in cultural method is the foundation of all cotton boll weevil control.

2. The so-called Cultural Method consists essentially in the forcing of a main crop of cotton to maturity.

3. In boll weevil-infested regions it is not possible to produce a "top crop."

4. The greatest losses are sustained during the first year while the growers are being forced to adopt improved methods or quit growing cotton.

5. The Cultural Method begins in the fall by (1) destroying (plowing under or burning) the cotton plants; (2) preparing the soil early; and (3) planting a cover crop. It continues into the next year by (4) planting early maturing varieties and planting them early; then (5) forcing a main crop and harvesting it early.

6. Destruction of nearby hibernating places, such as weeds, Spanish moss, and rubbish is a necessary accompaniment of the fall destruction of the cotton plants.

7. Methods of destroying weevils, such as poisoning and hand-picking are useful only to supplement the cultural method.

8. The weevils feed only on cotton. This fact makes it possible to temporarily eradicate the weevil in isolated fields and localities, by omitting the planting of cotton for a year.

THE MEXICAN COTTON BOLL WEEVIL

(*Anthonomus grandis*)

By

E. W. Berger, Ph.D.

State Inspector of Nursery Stock

The Mexican Cotton Boll Weevil arrived at the western border of Florida in October, 1910. By the end of the season for 1912 it has advanced until the weevil line now passes thru Prosperity and Ponce de Leon in Holmes County (see map). There is no doubt but that it will continue to advance about 40-60 miles annually, altho it may, at certain times, receive a temporary setback, as indicated in the map for the northern and western areas of the cotton belt; or it may advance more rapidly.

The Case Stated.

From whom shall we take our advice? The weevil is about to infest our fields of cotton and some method of control, or avoiding its injuries, must be adopted. Shall we go to the man who has never seen a weevil, or to the growers of cotton who have succeeded in spite of the weevil? From the information available, cotton growing is still an important industry in the localities that the weevil has infested. It therefore behooves us to adopt, as far as possible, the practices in cotton growing followed in those localities.

Sources of Information.

The information given in this paper is a compilation from the writings of the many investigators and successful growers of cotton since its advent into Texas in 1894. Literature on the cotton boll weevil may be obtained from the U. S. Department of Agriculture by addressing your senator or representative in Washington. In order to keep in *close* touch with the work of the U. S. Dept. of Agriculture, all who are interested should receive the *Monthly List of Publications*, which may be obtained regularly by addressing the *Editor and Chief, Division of Publications, U. S. Dept. Agric., Washington, D. C.* It is well, also,

to keep in *close* touch with the State Agricultural Experiment Station at Gainesville, Fla., and specimens of all suspicious insects and diseases of plants should be sent there at once upon finding them. The weevil being of only recent advent into Florida, practically no work has been done upon it here, hence the importance of keeping posted thru the publications of the Department of Agriculture, whose field workers have studied this pest since 1894 when it first loomed into importance in southeast Texas.

What to Do.

Observations and investigations of entomologists and other investigators with the U. S. Department of Agriculture and the several Experiment Stations of the cotton-growing states, are to the effect that the injury of the cotton boll weevil can largely be avoided by the adoption of some changes in methods in the time of planting, fertilizing, cultivation, in the selection of early maturing varieties, and in the destruction of old plants. The method is spoken of as the Cultural Method.

Summary of the Cultural Method.

The following quotation from Bulletin 51, pp. 161-163, Bureau of Entomology, U. S. Department of Agriculture, is a brief but good summary of this subject:

. . . . "In the cultural method of avoiding damage by the boll weevil, it is considered that a fairly effective remedy has been discovered. In some respects the term cultural method is misleading. It is frequently used simply in the sense of careful and persistent cultivation of the crop. However, the term includes the various modifications of the cropping system which have been suggested by the study of the life history of the pest as useful in avoiding damage. Consequently the cultural system is not altogether a system of the proper cultivation of cotton, but a system of the proper cultivation of cotton to mitigate the damage by the pest. Necessarily, it implies a thorough preparation of the soil and a strict attention to all the details of cultivation.

"The cultural method begins with reducing the numbers of the pest in the fall by the destruction of the plants as soon as it becomes apparent that no more cotton is to be produced. The enormous importance of this procedure is shown by the fact that the late issuing weevils are the ones which successfully hibernate. . . . . Hosts of weevils may thus be killed, a very small percentage surviving the winter, and in the same operation the ground is better prepared for planting the following season. A large proportion of the weevils thus destroyed would otherwise

pass through the winter successfully and increase the damage to the planted cotton the following season. Whenever the cotton is all to stand in the fields in the hope that a top crop may be produced, opportunities are furnished for the development of a very large number of weevils. As explained before in this bulletin, the possibility of a top crop has always been exceedingly remote. Wherever the weevil exists it is not a possibility at all. The method of fall destruction only involves applying labor that is necessary in any case in preparing the land for planting a few months earlier than is the normal practice among cotton planters. It has been the custom to leave the land uncleared until shortly before planting time in the spring. Now, however, this clearing is necessary as the last step in the production of the preceding crop. This method, as a matter of fact, is the only practicable strictly remedial method that has been devised.

"The remaining portion of the cultural method consists in furthering the advantage gained by fall destruction by bending every effort toward obtaining a crop that will mature before the weevils have had an opportunity to do considerable damage. The most important factors in obtaining an early crop are early planting, selection of a rapidly growing variety, fertilization, and thorough cultivation. The success of the planter will be in direct proportion to the extent to which he is able to combine these essentials. Early planting of early varieties will be found to be of comparatively little avail unless followed by thorough cultivation, and in case of unavoidably delayed planting the best hope of the planter will be in persistent cultivation.

"As the details of the cultural method have been dealt with fully in the Farmers' Bulletins of this Department, and as the basis for them in the habits of the weevil was fully explained in the preceding pages, it is unnecessary in this connection to more than summarize them:

(1) Fall destruction [of plants and weevils].

(2) Early planting of rapidly maturing varieties.

(3) Wide spacing, which, besides favoring rapid maturity of the plant, also acts as a remedial measure by allowing the sun to reach the ground, causing the drying up of the squares in which the larvæ occur.

(4) Thorough cultivation.

(5) Fertilization with commercial preparations containing high percentage of phosphoric acid.

THE CULTURAL METHOD IN DETAIL.

Fall Destruction of Cotton Plants.

The fall destruction of cotton plants is recommended for the following reasons:

1. To destroy all the larvae and papae (that is, immature stages) of the weevil in the squares and bolls at that time.

2. To destroy large numbers of the adult weevils.

3. By destroying the late-maturing weevils, the number that successfully hibernate, or pass the winter, is greatly reduced, since large numbers of the early-maturing weevils die during the winter. Thus, in a carefully observed instance, out of 240 weevils placed in hibernation in mid-December, 15.8 per cent. passed the winter successfully; while out of 116 that became adult in mid-November, less than 1 per cent. survived.

4. It reduces the shelter places of the weevil during winter, resulting in the death of many.

5. The effect of 1 to 4 is to greatly reduce the number of adult weevils that attack cotton in spring.

6. "Clearing of the field in fall makes it possible to practice fall plowing, which is not only the proper procedure in any system of cotton raising, but also greatly facilitates the early planting of the crop the following spring." (Circular 56, Bureau of Entomology, U. S. Department of Agriculture.)

The plants should be destroyed as soon as the main crop is harvested. No "top crop" should be allowed to grow, for the weevils will get it. This point is specially emphasized by those who have investigated the weevil; do not expect a "top crop," but proceed to destroy the plants as soon as the main crop is harvested, or as soon as it is evident that the weevils are puncturing all or nearly all of the squares, or flower buds, and some of the bolls. The farmer should then wait until the bolls set have opened, collect the lint, and proceed to destroy the plants, whether it is in October, November, or earlier.

Method of Fall Destruction.—The plants must be removed, root and stalk, as otherwise sprouts may grow from the roots and provide food for the adult weevils remaining in the field. The plants should be plowed out or otherwise uprooted, cut with a stalk chopper, and immediately plowed beneath the surface. The deeper they are plowed under the better. Unless the plants can be plowed under deeply they had better be burned, as weevils can work their way up thru two or three inches of loose earth; especially is this important in Florida where the soil is generally loose and sandy. To plow under, the chopped plants and thereby effectively destroy the weevils plowed under, is considered to be most practical only on wet and stiff soils. The land should afterwards be harrowed to make it still more difficult for the weevils to emerge.

Burning the plants has been strongly recommended in the bulletins of the U. S. Department of Agriculture, and plowing them under only where this can be effectively done. In view of the fact that Florida soils are generally loose and sandy, and that they soon dry at the surface, experience may prove that burning the plants after uprooting them is the only method to employ in Florida. The uprooted plants should be collected in piles or windrows, either by hand or by means of a horse-rake. They should be raked up at once before the leaves drop off, as these aid in the burning. Two weeks, in fair weather, is sufficient time for drying. If rain prolongs this period, sprinkling with crude petroleum may be necessary to facilitate the burning. After the plants have been burned, the ground should be plowed in order that the bolls and squares remaining on the ground, many of which still contain immature weevils, become deeply covered with soil.

But it is objected that the tenants will not destroy the cotton plants in fall and that burning destroys valuable fertilizer constituents. For the first, it may be made part of the agreement between owner and tenant that the tenant must destroy all old plants in the fall. The fertilizer value of the cotton plant is not great and, under the circumstances, humus can be supplied by some fall or winter cover crop, such as oats or rye. The investigators of the weevil tell us that it would be impossible to produce cotton under weevil conditions unless the plants are destroyed in fall.

Maturing the Crop Early.—While the object of destroying the cotton plants in fall is to reduce, as far as possible, the number of weevils that can live over until spring, the object of maturing the crop early is to keep the crop ahead of the weevils. In other words, one should undertake to grow the crop faster than the weevils can increase. The weevil will, of course, eventually increase to the extent that all new squares, or flower buds, and bolls will be punctured as rapidly as they are formed; but as the weevil develops slower in the early part of the season than later, when it becomes warmer, this fact gives the grower his opportunity to force the cotton ahead of the weevil.

Early Planting.—After the fall destruction of the old plants the preparation of the soil for the next crop should be taken under consideration. It may be well to plant a cover crop of some kind to protect the soil, and for humus. At all events, the soil should be put into condition, plowed deep, pulverized,

etc., ready for planting at the earliest possible date. Better plant ten to twenty days earlier, and take the risk of replanting. Volunteer cotton should not be allowed to fruit before the regular crop, as it would result in the propagation of young weevils, which require squares and bolls in which to develop.

EARLY MATURING VARIETIES.—Early maturing varieties must be planted to get the best results. This is self evident in view of what has been already stated. Such varieties may be obtained from seed dealers or growers that have selected their seed for early maturity. Farmers' Bulletin No. 314, "A Method of Breeding Early Cotton to Escape Boll Weevil Damage," by R. L. Bennet, should be in the hands of every grower. (A copy of this bulletin may be obtained by any planter from the Secretary of Agriculture, Washington, D. C.)

SPACING OF COTTON PLANTS.—That weevil larvæ are killed when the infested squares fall to the ground, exposed to the sun's direct rays, suggests the desirability of so spacing the plants that a maximum of sunlight will be admitted to the ground. This may mean 4 to 5 feet apart on the richest soils. Check-rowing is considered to be good practice, because it admits the greatest amount of sunlight to the ground and facilitates cultivation. To further take advantage of this fact, that the miniature stages of weevils are killed by the baking of the fallen squares on the ground, the chain cultivator was devised (see p. 11).

In Circular No. 115, Bureau of Plant Industry, Washington, D. C., O. F. Cook discusses a *New System of Cotton Culture.* (This circular should be read by all cotton growers. Copies can be obtained at 5 cents each from the Superintendent of Public Documents, Government Printing Office, Washington, D. C.) The "conclusions" are herewith quoted:—

"The new system of cotton culture is based on the application of a principle not hitherto recognized in cultural experiments —the control of the vegetative branches by improved methods of thinning. The formation of vegetative branches can be controlled by leaving the plants closer together during the early stages, until the stalks have grown beyond the stage where vegetative branches are produced.

"The essential feature of the new system is later, or more gradual, thinning. This makes it possible to leave more plants in the rows than is now customary, and yet injurious crowding is avoided through suppression of the vegetative branches.

"The control or suppression of the vegetative branches also permits an earlier development of the fruiting branches and leads

to the production of an earlier crop. In regions where the period of crop production is limited, either by short seasons or by the presence of the boll weevil, increased earliness is a means of securing larger yields."

CULTIVATION OF CROP.—Besides early planting, planting of early maturing varieties, and spacing the plants consistent with best results under weevil conditions, the crop must be cultivated often in order to stimulate it and keep it growing. "Once a week and once in a row" should be made to apply. This does not destroy many weevils, but keeps the plants growing continuously. However, cultivation should not be deep, nor too close to the plants to cut the roots, as this may cause shedding of squares (flower buds) and the benefits lost.

COMMERCIAL FERTILIZERS.—It should go without saying that fertilizer (plant food) is as necessary for cotton as food is for the mule. Plenty of plant food forces the crop and experiments have shown that a high percentage of phosphoric acid in the fertilizer hastens the maturity of cotton.

CROP ROTATION.—The weevil feeds only on cotton and this fact gives the grower another opportunity to reduce its numbers, especially in isolated fields, by omitting cotton every alternate year and planting corn or another crop instead. When cotton is again planted, it will become infested only by weevils migrating from other localities, the weevils originally in the field having died from starvation. Crop rotation is especially useful in fields near woodlands, in which trees, moss, leaves, etc., furnish excellent hiding, or hibernating places, during winter.

Messrs. Evans and Doyle, of the U. S. Dept. Agr., have recently found where cotton is grown successfully under weevil conditions, in southern Mexico. The method consists in planting cotton every alternate year, and allowing the weevils to starve during each intervening year by planting corn or beans instead. It appears that the Indians practiced this method before the coming of the Spaniards. The case is interesting as illustrating how primitive people may come to follow correct practices without knowing the reason why.

THE CHAIN CULTIVATOR.

Fig. 2 and Plate I.

When infected squares drop and come to lie on the ground exposed to the direct rays of the sun, the heat is so great that the larvae in the squares are killed. This observation led to the in-

vention, by Dr. W. E. Hinds, of the Chain Cultivator, a device for drawing the fallen squares to the middle between the rows, where there is the least shade and the ground hottest. It has been found, on the other hand, that this cultivator produces a very important cultural effect aside from its use for drawing the squares to the middles. The chains (so-called "log chains") are

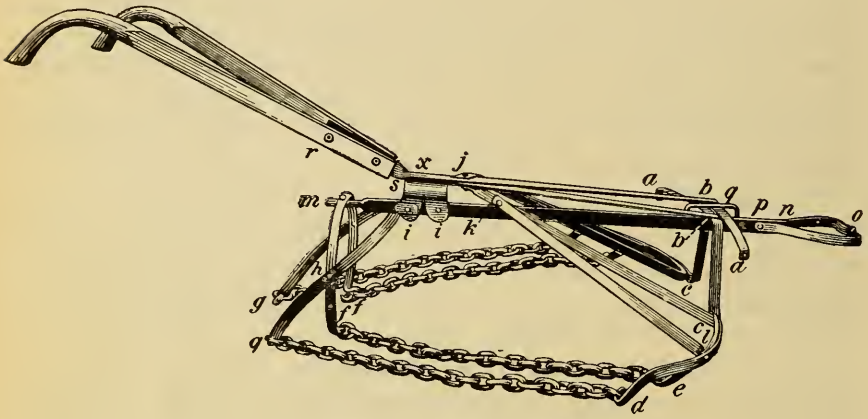


Fig. 2. Chain Cultivator. (For description see p. 11.)
(From Farmers' Bul. No. 344, U. S. Dept. Agric.)

heavy enough to establish a perfect dust mulch and to destroy small weeds.

The following description and accompanying figure (Figure 2) have been copied from Farmers' Bulletin No. 344, U. S. Department of Agriculture, Washington, D. C. (This bulletin may be obtained by addressing the Secretary of Agriculture.)

"*Chain Cultivator.*—When the foregoing facts came to light efforts were made to perfect a device that would bring the infested squares out of the shade of the plants to the middles of the rows. After much experimental work one of the writer's former associates, Dr. W. E. Hinds, devised an implement that accomplishes the desired work in a satisfactory manner. This implement is known as the chain cultivator or chain drag.

"The following specifications should enable any blacksmith to construct an effective chain cultivator.

"The draft bar *n m* (Fig. 2) made of ½ by 5-16 inch tire steel, about 52 inches long, is designed to be about 16 inches above the ground, and this is the height of the rear arch *f h m*, which is

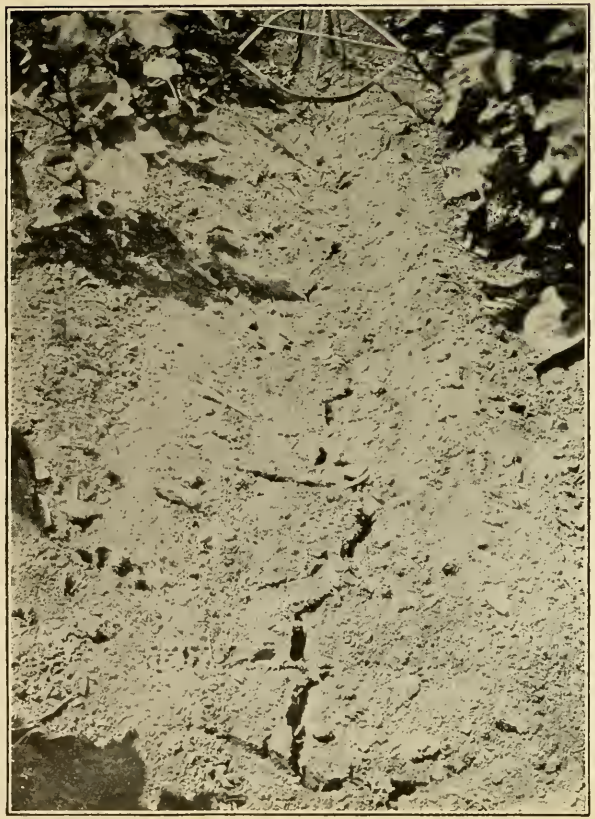


Fig. a. Space between cotton rows before passage of cultivator. Note fallen squares and crack in soil.

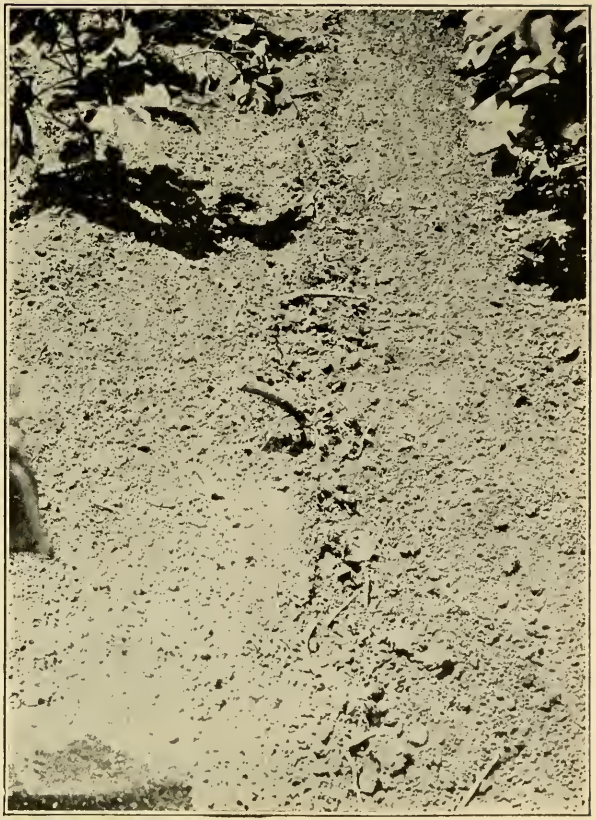


Fig. b. Effect after passage of cultivator. Squares brought to middle, crack filled, dust mulch established.

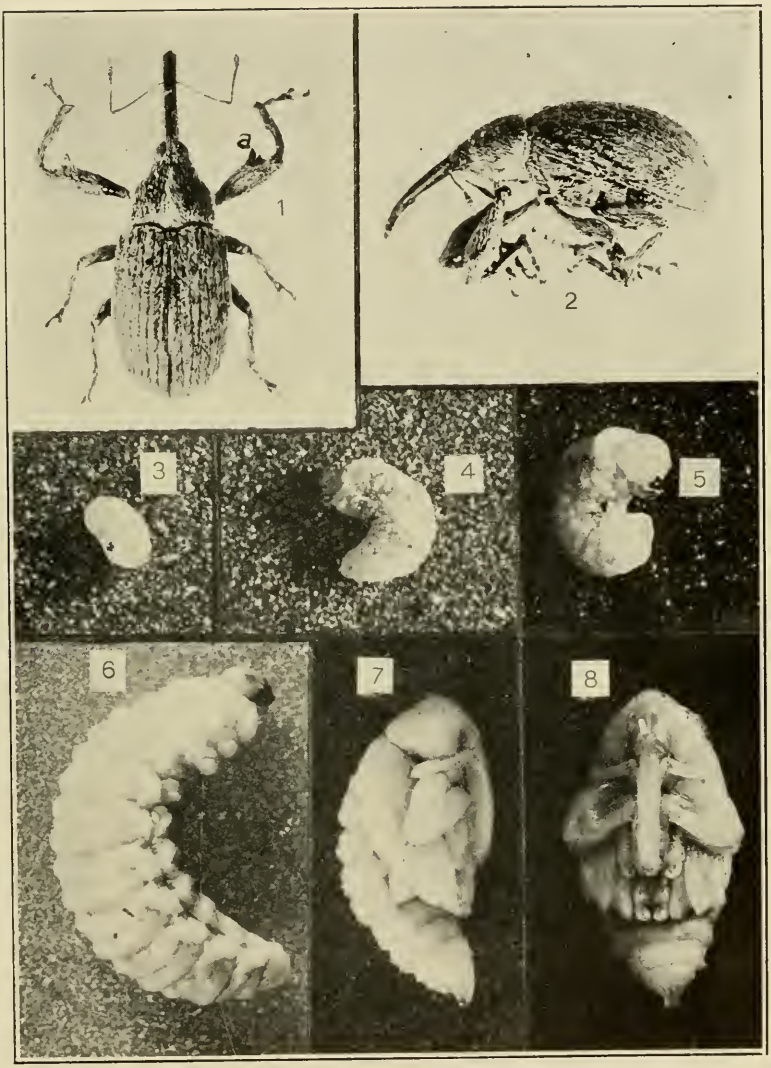
USE OF CHAIN CULTIVATOR

(From Bulletin No. 114, Bur. Ent., U. S. Dept. Agric.)

PLATE II

Typical weedy fence-row, affording excellent shelter for weevils.

(From Bul. No. 77, Bur. Ent., Dept. Agric.)



LIFE HISTORY OF THE BOLL WEEVIL.

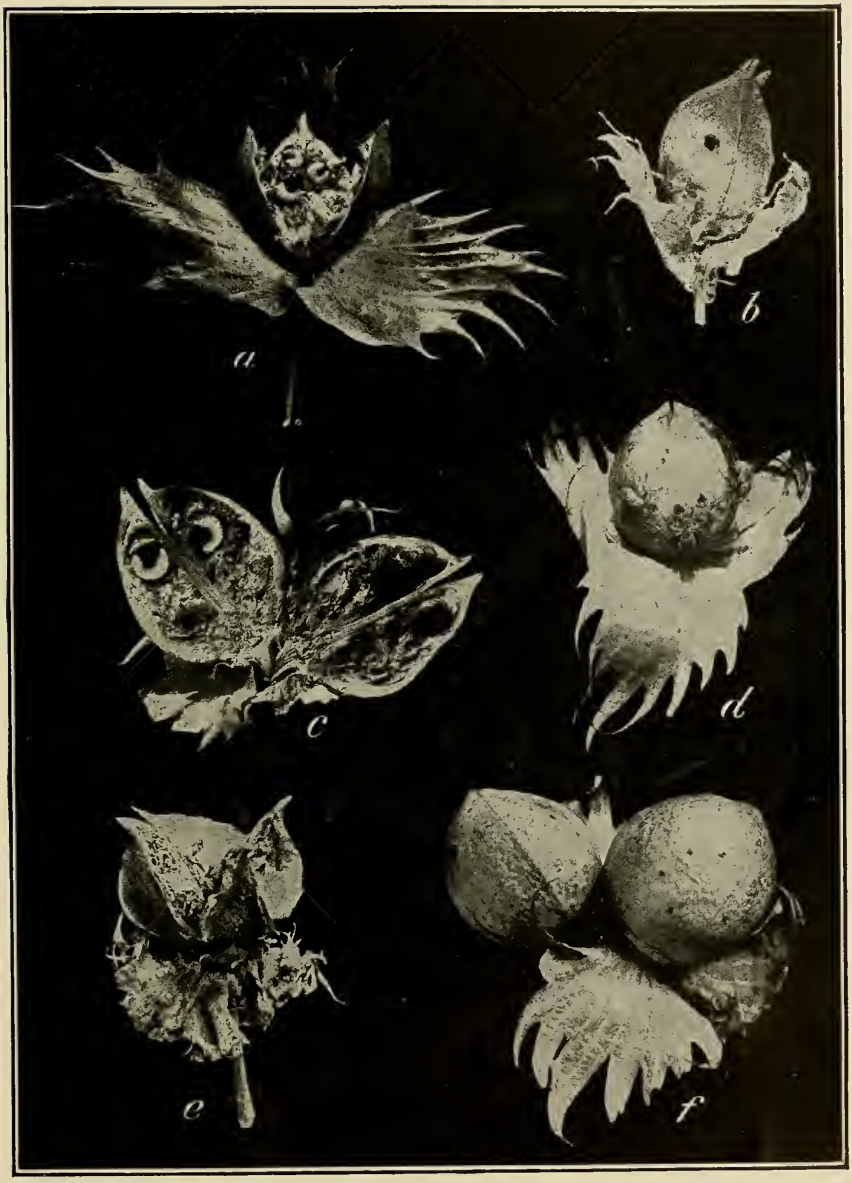
Figs 1 and 2, adult weevils; 3, egg; 4, grub about two days old; 5, grub about 3 days old; 6, grub fully grown, about 10 days old; 7, side view, and 8, front view of pupa, or transformation stage. Nos. 1, 2, 6, 7, 8, enlarged 10 diameters; 3, 4 and 5 about 20 diameters.

(From Bul. No. 146, Ala. Expt. Station.)

INJURY BY BOLL WEEVIL TO SQUARES.

a, Bloom checked by attack of larva; b, square opened, showing grown larva; c, square showing pupa; d, dwarfed boll opened, showing one larva and two pupae; e, weevil escaping from square; f, emergence hole of adult in square.

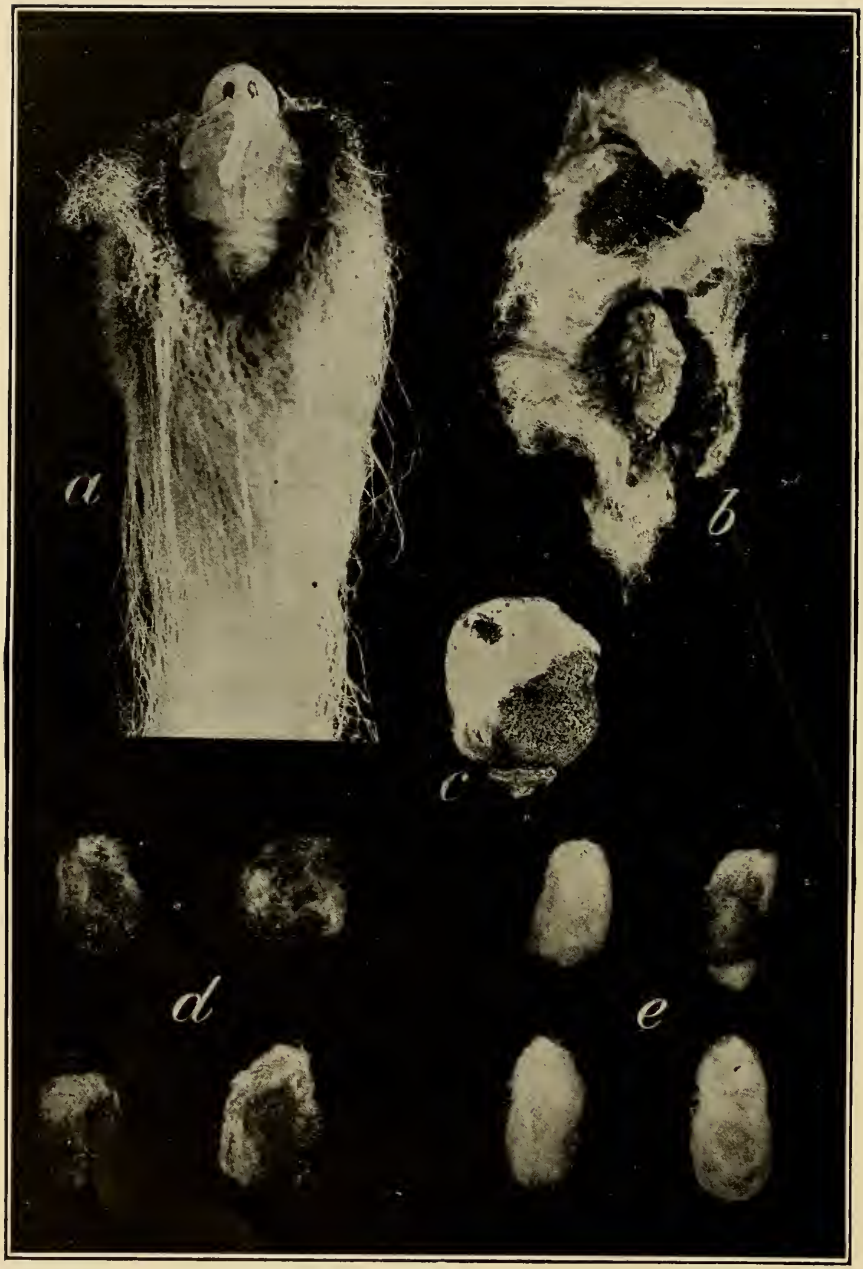
(From Bul. No. 114, Bur. Ent., U. S. Dept. Agric.)



INJURY BY BOLL WEEVIL TO BOLLS.

a, Three larvae in boll; b, emergence hole in dry, unopened boll; c, two larvae in boll; d, weevils puncturing boll; e, opened boll, with two locks injured by weevil; f, large bolls severely punctured.

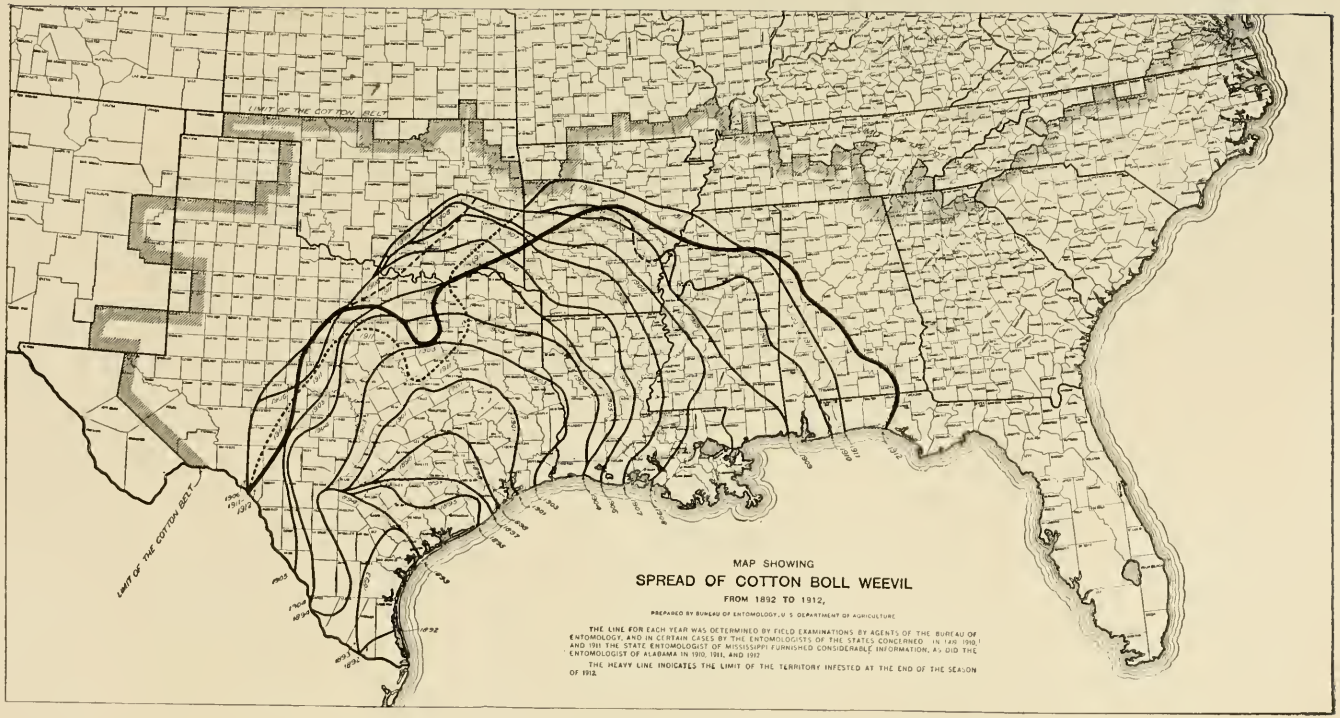
(From Bul. 114, Bur. Ent., U. S. Dept. Agric.)



RELATION OF BOLL WEEVIL CELLS TO SEED.

a, Boll weevil pupa found in cotton seed; b, boll weevil pupa in cell of lint from boll; c, weevil cell in dwarfed cotton boll containing live pupa taken among seed; d, weevil cells in bolls; e, cotton seeds.

(From Bul. 114, Bur. Ent., U. S. Dept. Agric.)



The Spread of the Cotton Boll Weevil in the United States from 1892 to 1912.

(After map prepared by Bureau of Entomology, U. S. Dept. Agric., Washington, D. C.)

of this size and form to allow old cotton roots, etc., to pass through freely without clogging at the rear.

"The distance between the rear ends of the chains *g g*, *f f* is in each pair fixed at about 10 inches. The distance between a chain of one pair and that of the other at their front ends should be about 9 inches. The chains used are of the size known as "log chains," having short, close links of $\frac{3}{8}$-inch iron. This style of chain can be cut to the ength needed in each case. The chain is easily attached by simply making the hooks at *d*, *e*, *f*, and *g* so that the end of the hook is as wide as will pass through the length of the link and narrow enough at the middle of the bend to allow the link to turn and bag the other way. So long as the chains are kept tight they cannot become unhooked. The hooks should also be turned, or faced, in such a way that they will not be likely to catch the passing plants or rubbish.

"The clevis *o p* is simply hinged, so that there will be no tendency to pull the front of the machine off of the ground, and it is also broad enough in front to allow of the point of draft being moved from one side to the other, so that the front of the machine may be thrown closer to one row if desired.

"The front guard on each side *a b c d* is made of one piece of spring steel, $\frac{7}{8}$ by 3-16 inch. This size seems sufficiently strong and best adapted to carry the tension of the chains *d g* while still yielding to the pressure against the bases of the plants as they may strike the outer, sloping ends near *d*. The inner ends of these guards *a b* are horizontal, about 18 inches each in length, and serve to carry the front guard above the draft bar *n m* and, passing through the keeper *q*, guide in the adjustment for width. The machine cannot be extended beyond the bent ends at *a* or closed beyond the angles at *b*. The vertical section between *b* and *c* is about 12 inches long, so that the remainder of the front guard from *c* to near *d* will be about 4 inches above the ground. This prevents the pushing of dirt and squares toward the plants and allows the chain to catch them where they lie. The hooks at *d* and *e* are therefore bent downward and somewhat backward through about 5 or 6 inches. Care must be taken especially in forming the outer ends between *c* and *d* to secure best results. The downward bend for the hook at *a* should not be abrupt, as the gradual slope helps to prevent catching on any obstacles. The hooks at *f* and *g* are formed so as to hold the chains firmly and yet not interfere with the passage of rubbish. The method of carrying the rear ends of the outer

chains is shown at *i h g*. The piece *k l* is nearly parallel with the chains and may be used for their proper adjustment as to tension by several holes near the end where it is bolted at *k*. The chains are between 30 and 36 inches long. The stand *s* upon which the handles are pivoted by a ½-inch bolt is made of a piece of boiler plate bent and cut so as to have a horizontal top surface about 4 inches square and standing about 2½ inches above the draft bar, to which it is securely bolted. The handles are bolted, as at *r*, to the heavy pieces of iron (about 2 by ½ inch tire steel) which are bent to receive them just behind the pivotal point at *x*, at such an angle as to bring the handles to the proper height and position. In front of *x* these pieces bearing the handles need not be so heavy and may therefore be tapered and welded to smaller steel running forward to *b*, where it is bolted to the front guard. The operation of this arrangement is similar to that of a huge pair of shears—when the handles are pushed apart the front of the machine is spread wider, and vice versa. The braces *j c e* serve to support, strengthen, and carry the front guard. They are riveted to the adjusting irons at *j*, one above and one below the "shear" pieces, to prevent their interference with the closing of the machine. At *c* this iron is bent to conform to the front guard, to which it is riveted between *c* and *l*, at which point it is bent downward and forms the hook *e*. Ordinary tire steel about 1 by ¼ inch may be used for all parts like the clevis *o p*, rear arches *f h m* and *i h g*, and braces *k l* and *j c e*. The front guard *a b c d* should be of spring steel, as specified. The rivet heads on the front guard should be round and fit smoothly. In nearly all other places the irons are fastened together by ¼-inch square-headed bolts, with washers as needed.

"In operation the implement is drawn by a single animal. The chains at *d* and *e* pass under the branches of plants and close to the stems. The forward motion of the machine causes these squares to be drawn inward by the chains, which must keep taut, and leaves them in a narrow pathway where the chains approach within a short distance of each other at the opposite end of the machine. The two chains are provided so that squares that may pass over the first are taken up by the second on either side. In actual practice it has been found that more than 90 per cent of squares may be brought to the middle of the rows. This means that the natural mortality among the weevils due to the effects of sunshine can be at least doubled.

"Although the chain cultivator was designed primarily for

bringing the squares to the middles, it was found in field practice to have a most important cultural effect. The chains (so-called "log chains") are heavy enough to establish a perfect dust mulch (see Plate I) and to destroy small weeds that may be starting. In fact, it is believed that this cultural effect would more than justify the use of the machine, regardless of the weevil. With the effect against the insect and the important cultural effect it is believed that this implement or one similar to it should be used by every farmer in the weevil territory.

"*In order that the use of this machine could be obtained by all farmers at the smallest possible cost, a patent has been taken out in then ame of the Department of Agriculture and for the benefit of the people of the United States. Under this patent it is impossible for anyone to manufacture the machine exclusively and to charge unnecessarily high prices."

Destroying Weevils in Hibernation.

Plate II.

Weevils live over winter, or hibernate, in many places, but principally in grass, leaves, Spanish moss, and old sorghum or corn fields. Any rubbish, however, and buildings, especially cotton gins, will harbor them. It therefore becomes very important that all rubbish in and near cotton fields should be burned in order to destroy as many of the weevils as possible. Plowing and harrowing of the fields will strengthen the blow. We may better appreciate the importance of destroying every weevil that can be found, when we contemplate that the progeny of one pair of weevils may reach the enormous number of 12,755,100 during one season. This number is, however, never actually realized in the field because of the many accidents to which all stages of the weevil are subject.

Poisoning.

Poisoning with paris green has been found to be ineffective. This poison injures the plants and poisons few weevils. Placing this poison on volunteer cotton early in spring may kill many weevils, since they feed to some extent on the leaves, but it is considered best to destroy all volunteer cotton, since weevils deprived of food live only six or seven days, except in hibernation.

Arsenate of Lead.—In Louisiana, preliminary experiments with powdered arsenate of lead (Cir. No. 33, State Crop Pest

*The machine can now be obtained thru dealers in agricultural implements.

Fig. 3. Applying a powdered insecticide by means of a Champion Duster. The secret of success in dusting cotton with powdered arsenate of lead, lies in forcing the powder into the terminal buds with a strong current of air.

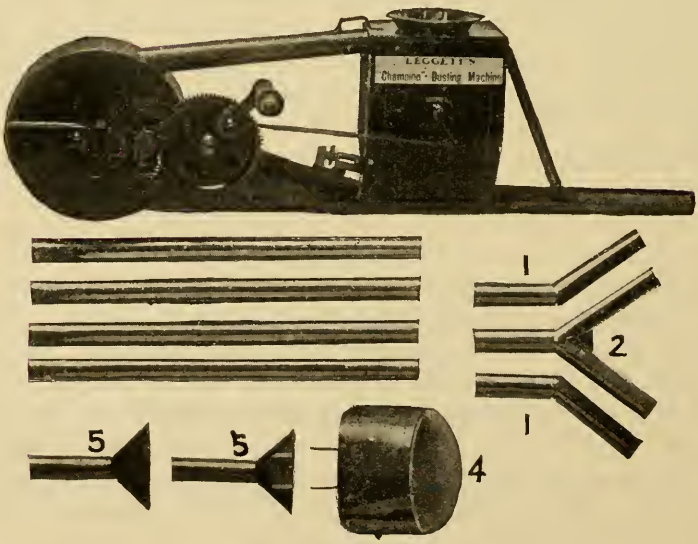


Fig. 4. Champion Duster with extension rods and nozzles.

Commission of Louisiana, July 1908) indicate a remarkable degree of success. However, early fall destruction of the cotton plants is a necessary antecedent to successful poisoning. Neither must any step in the "cultural method" advocated be omitted, because poisoning is only another help for reducing the number of weevils, but not a panacea. The experiments further show that profitable results were obtained only by using the powdered arsenate of lead against the weevils early in the season, namely, against the weevils on the first buds. It would be useless to employ it in an effort to save a "top crop" or during summer.

This poison should be applied about five times at intervals of five to seven days apart; the first application is made when the first square is found in the field. The powdered arsenate of lead must be applied with a powerful current of air by means of a blow gun and driven into the terminal buds (between the small leaves that make up the buds) on the main shoots and on the ends of the fruit limbs. Do not dust on by means of a sack, as that has been found useless. The "Champion Insecticide Duster" (Figs. 3 and 4), made by Leggett & Brother, New York City, is the type of machine found most satisfactory by Mr. Newell.

Hand Picking.

Collecting the live weevils and infested squares by hand may be practiced in small fields and when cheap labor is abundant. The live weevils should be placed in a dish with a small amount of kerosene, which is certain death to them. The infested squares and bolls should be placed in wire cages or in boxes covered with wire netting. The net must be 16 mesh (17 strands) per inch so that the weevils, as they emerge, cannot escape; but any useful insect parasites which happen to be infesting weevil larvae will be able to escape and find their way back to other cotton plants and parasitize other weevil larvae. This is the object to be gained by placing the squares under the wire screens. If such are not available, the squares must be burnt.

Useless Methods.

Mineral paint, sulphur, spraying, trapping with lights, poisoned sweets and cotton seed meal, as bait, have all been tried and found ineffective. Trapping with lights is useless, because weevils are not active at night, but only in daylight. If weevils or infested squares are buried they must be buried deep, since adult weevils can work their way through at least three inches of

dry soil. This also implies that probably very few weevils are ever killed when buried by ordinary plowing or cultivation.

Diseases and Parasites.

The weevils appear to be exceptionally free from diseases. A promising number of insect parasites, however, are known; according to Farmers' Bulletin No. 344, p. 15, U. S. D. A. there are 23 species. These appear to be on the increase and will undoubtedly become a more useful factor in the future, although they may never be able to control the weevil without the aid of the cultural methods described. These parasites deposit their eggs upon the grubs of the weevils in the squares or bolls. The parasite larvae that hatch from these eggs destroy the grubs of the weevil and later, instead of a weevil, a parasite of the weevil emerges from the squares or bolls.

Of 22 species of predaceous insects (Bul. 344, previously cited), 12 are ants. These are the minute brown and yellowish ants that frequently occur in cotton fields. Their work is directed against the grubs and pupae of the weevils in the squares, and not against the adult weevils.

The effectiveness of the predaceous insects, as well as that of the parasites of the weevil, increases more or less accordingly as the numbers of the weevil are reduced in other ways.

How Each Grower Can Protect Himself.

He can help himself to some extent even if his neighbors are indifferent and do nothing to reduce the numbers of the weevil in their fields. The fact that weevils do not fly much from field to field during the period when the cotton is setting its main crop, and the fact that the first weevils in the field at the beginning of each season are mainly those that succeeded in hibernating successfully in and near the field, make this possible. With these facts in mind, and a close application of the cultural method, any grower can protect himself unmindful of his neighbors, unless their fields immediately adjoin his, when it may be necessary to locate the cotton field elsewhere.

What the Bankers and Merchants Can Do.

The following quotation is from a circular issued by the Bureau of Plant Industry (B. P. I.—619, No. "A"—71, January 19, 1911): "The Production of Cotton Under Boll Weevil Condi-

tions." "The second cause noted is the lack of confidence, first on the part of the farmer. *If a man doesn't believe that he can accomplish a thing it is about half way toward not doing it at all.* He loses force and energy. The second result of the loss of confidence is that the bankers and merchants withhold credits, and since much of the cotton crop is made upon the credit system, the planter is crippled and prevented from planting as many acres as usual."

In view of the fact that the bankers and merchants represent one of the strongest factors in the intellectual and business life of a community, it appears that they might take the lead in encouraging the adoption of the newer methods necessary for successful cotton culture under boll-weevil conditions. A Cotton Protective League, or society of the bankers, merchants and leading growers could be organized for the purpose of studying weevil control, especially in its application to local conditions. Then credits might be conditioned upon the application of the proper cultural methods. The citrus growers have Citrus Protective Leagues for the purpose of controlling the whitefly and other pests.

How the Weevil Spreads.

The adult weevil is not a good flier, but successive short flights may carry it over long distances. Thus it has been known to cover more than 40 miles in a brief period of time. Favorable winds aid in its dispersion. The main dispersion period is some time in August or September. At this time the weevil's instinct to migrate becomes active and it flies in all directions. Only those, of course, that fly in the direction of non-infested territory succeed in extending its range. The weevil may advance something like 30 to 60 miles per season.

Besides the general migratory period first noted, weevils move short distances in all directions from the fields in fall, searching for hibernating quarters. In spring there is a corresponding movement back to the fields, but after that the weevil keeps busy in the field until the crop is mainly grown. Railways and water courses are two principal lines of spread, also traffic along highways. Shipments of cotton and seed from infested localities are almost certain to carry weevils. Hulls and other by-products used for feeding cattle may carry them to the farmer. In this connection it should be noted that the artificial spread of the weevil may be greatly retarded if growers will look to getting

their supplies of seed from non-infested localities. Tennessee, north-eastern Alabama, north Florida (east of Holmes Co.), and the states east of those just named, are localities still free from the weevil.

Food of the Weevil.

The weevil has no other known food plant but cotton.

Early in the season the adult weevils feed on the tender foliage of the young cotton, but later principally on the squares and to some extent on the bolls. Experiments prove that the female weevils do not produce eggs until they can feed on squares or bolls.

The immature stages of the weevil, or grubs, feed only within the squares and immature bolls, and no other known insect feeds in this manner on cotton.

Varieties of Cotton Infested.

All varieties of cotton may become infested. The foreign varieties, however, are preferred when grown side by side with American varieties. Thus Sea Island cotton is 2 to 4 times as attractive; Egyptian over 4 times as attractive as American cotton.

While these observations show clearly that the Egyptian and Sea Island cottons would be at a great disadvantage when grown in the same weevil infested locality with American cotton, they do not show that the weevil would be more prolific upon them when grown alone. The longer period required for the maturing of Sea Island cotton will, however, in all probability, place it at a decided disadvantage, and may even eliminate it as a profitable crop when the weevil reaches the parts of Florida where it is grown.

Growers of Sea Island cotton in the eastern parts of Florida had, therefore, better cast about for a substitute of this crop, early, in order that they may be fortified when the weevil reaches them. It is not impossible on the other hand, but that early maturing varieties of long staple cotton may be found, suitable to this part of the State. According to the rate of advance during 1912 (see map) we may expect the weevil to have arrived at or near Quincy by the fall of 1913, at or near Madison in 1914, and Macclenny in 1915. Should the rate of advance be only half that in 1912, the weevil may be expected at Quincy in 1914, at Madison in 1916, and at Macclenny in about 1918.

How to Know When the Weevil is Present.

The adult weevil (Fig. 1, Plate III) is one of the snout-beetles. Its snout, shiny black, slender and slightly curved, comprises about one-third of the total length of the beetle. The insect is about one-fourth inch long, and dark brown, ashy-gray, or yellowish brown in color.

The fully grown grubs (Fig. 6, Plate III) are about three-eighths inch long, curved, and can be found only in squares and bolls. The pupa (Figs. 7 and 8, Plate III) or transformation stage, is not quite as long as the fully grown grub and is also found in the squares or bolls. All the immature stages (eggs, grubs, pupae) occur only in squares and bolls (Plates III, IV, V).

Squares and bolls from which fully grown weevils have come have holes about 1-20 to 1-16 inch in diameter (Plates IV, V). These cavities lead to larger excavations in the interior and are the openings through which a weevil emerged.

Some observers state that the squares with holes somewhat resemble those injured by the boll-worm. Generally only one weevil develops in a square. Small elevated growths, called "warts," on the surface of squares and bolls, mark the punctures where an egg was deposited. Orange-colored excrement on the buds and abundant flaring and shedding of squares without apparent cause are other signs of the boll weevil.

Hibernation of Weevils.

Soon after the first frost the adult weevils hide away in concealed places and remain dormant until spring. This is called hibernation. Large numbers of them perish during this period so that sometimes only one in six, or about 16 per cent. survive. The longer the hibernation period the fewer will survive. The hibernation period can be practically lengthened by the early destruction of the plants. In other words, it is the late maturing weevils that survive in the largest number while the earlier maturing ones mostly die before spring. Destroying the food supply early, therefore, has the effect of greatly reducing the numbers of weevils that hibernate successfully. Records show that of adult weevils taken from the field in December and placed in hibernation, about 16 per cent. survived, while of some taken before November less than 1 per cent. survived. The number that survives depends also very much upon suitable hibernating quarters, so that by destroying these in fall the number of weevils can be

greatly reduced. They will hibernate in and about almost anything that furnishes a place for concealment. Grass, Spanish moss and fallen leaves are preferred. Rubbish along fence rows and ditches, the edges of forests, about gins, oil mills, etc., are places of refuge in winter.

The Weevil Described.

The cotton boll weevil is a beetle (Fig. 1 and Plate III). It belongs to the family of weevils, technically known as Curculionidae. It is about one-fourth inch long and of a dark brown, ashy-gray, or yellowish brown color. Its snout, which is shiny black, slender and slightly curved, comprises about one-third of its total length.

Life History of the Weevil.

Plates III, IV, V, VI.

The Egg.—The egg is about 1-30 inch long, white and delicate. A square or boll is always selected as the place for its deposition. The female eats a small cavity for it. This small cavity generally grows over, forming what is called a "wart." From the egg there hatches, in a few days, a minute grub or "worm."

The Immature Stages.—The grub or worm hatched from the egg increases in size from about 1-25 of an inch to $\frac{3}{8}$ of an inch, when it is fully grown. During its period of growth it feeds on the inside of the square or boll. When fully grown it passes into the resting, or transformation stage, called the pupa. The pupa is the marvel of the insect world and is a stage in the development of nearly all insects. The transformation from the grub to the fully grown, or adult, weevil takes place in the pupa, and the entire life of a weevil, from egg thru pupa, is passed in the square or boll. The adult, after it emerges from the pupa, also remains within the square or boll for a few days, and then eats its way out, leaving the visible hole previously described.

Number of Generations and Length of Life Cycle.—In most sections infested by the weevil, there are eight generations each season, and the length of the life cycle, or the time required for the development of a fully grown weevil, from egg to adult, is three or four weeks. In the more northerly parts there are only four generations, because the prevailing temperature is lower and the season shorter. The females begin to deposit their

eggs within a week after they begin to feed, and continue to do so for about 56 days or until within a few days of death. The average length of life during warm weather appears to be about 70 days. Those that hibernate may live for six months or even longer.

History.

The cotton boll weevil, more properly called the Mexican Cotton Boll Weevil, sometimes erroneously the Texas Cotton Boll Weevil, appears to be native in Southern Mexico. It was described and named by Boheman in 1843 from specimens received from Vera Cruz. In 1871 it was recorded from Cuba. Serious injury to cotton near Monclova, Mexico, was reported to the Commissioner of Agriculture, in September, 1880, by Dr. Edward Palmer (Bul. 51, Bu. Ent., U. S. D. A.). The pest appears to have existed near Brownsville, Texas, in 1892, and in 1894 had spread to half a dozen counties. How it came across the Rio Grande is not known.

The deplorable fact remains that but for the indifference or incompetence of Texas at that time this pest could have been stopped in its advance in 1894. Considering the average damage per year due to the weevil as $10,000,000, we have for 19 years the enormous sum of $190,000,000 lost, not counting the money spent in the attempt to control it. This sum could, very probably, have bought the entire half dozen counties first found infested in Texas in 1894 several times, and over.

The establishment by law of a belt 50 miles wide along the Rio Grande in which cotton growing should be prohibited, was advised by the U. S. Department of Agriculture, but this advice was not heeded by the State of Texas, and subsequently disastrous results followed.

One wonders, sometimes, whether one state should not be held financially liable to other states for such gross neglect of duty. A United States law to that effect would probably result in a wholesome clearing of the atmosphere in that respect.

Territory Infested.

(Plate VII, Map.)

At the end of 1910, 268,000 square miles of territory were infested by the weevil. This is 40 per cent. of the total cotton-growing area. The average advance per year is about 50 miles and it has been estimated by those who are observing the

advance of the weevil closely that the whole cotton-producing area may be infested by the end of another 15 years (counting from 1910). At the end of 1912, 278,800 square miles were infested.

The area infested comprises the larger part of Texas, all of Louisiana, a large part of Oklahoma, about half of Arkansas, the larger part of Mississippi, southwest Alabama, and the four or five western counties of Florida.

The Prospects.

The weevil will not put the cotton grower out of business. Neither would the loss in the beginning be great if all the growers in a locality would co-operate in applying the methods found by experience to give results. The greatest loss generally occurs during the first two or three years when growers neglect to adopt the new method. Co-operation should be the keynote in cotton-growing communities.

Bulletins and Circulars.

For a list of bulletins and circulars referred to and recommended, the text may be consulted. See pages 5, 6, 8, 10, 12, 15, 18.

*The principal large bulletin on the Mexican Cotton Boll Weevil at present is Bulletin No. 114, Bureau of Entomology, U. S. Department of Agriculture. If copies of this bulletin cannot be obtained free thru the senators and representatives of Florida in Washington, the same can be obtained from the Superintendent of Public Documents, Government Printing Office, Washington, D. C., at 25 cents per copy. This bulletin has also been published as Senate Document No. 305, 62d Congress, 2d Session, 1912.

Other recent numbers of the *Farmers' Bulletin* are herewith listed. These can be obtained by addressing the Secretary of Agriculture, Washington, D. C.:—

F. B. No. 500. The Control of the Boll Weevil. By W. D. Hunter. This is a brief extract and summary of Bul. 114, previously noted.

F. B. No. 501. Cotton Improvement Under Weevil Conditions. By O. F. Cook.

F. B. No. 512. The Boll Weevil Problem, With Special Reference to Means of Reducing Damage. By W. D. Hunter.

F. B. No. 519. An Example of Intensive Farming in the Cotton Belt. By M. A. Crosby.

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*Copies can still be obtained free by addressing the Secretary of Agriculture, Washington, D. C.

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This division is carried on for the purpose of extending the benefits of the University to every community in the State. The work has broadened out into the following more or less distinct fields:

1. Lecture and Literary Bureaus.
2. Correspondence Courses in Agriculture.
3. Institutes: (a) Farmers' Institutes.
   (b) Women's Institutes.
   (c) County Institutes and Produce Contests.
   (d) Train Institutes.
4. Farm Demonstration Work.
5. Co-operation With County Crop Improvement Associations.
6. Field Instruction.
7. Farmers' Information.
8. Boys' Corn Clubs and Girls' Gardening and Canning Clubs.
9. Publications.

LECTURE AND LITERARY BUREAUS

Teachers, and others interested, are reminded that since September, 1906, the University has maintained extension work, under which courses of free lectures are given, when desired, to any high school in the State, and reading circles are organized and conducted, without charge, in any

school or community. The services of the University are thus offered to all the people of the State, and it is earnestly hoped that many schools and communities will take advantage of them.

There will be no charge for these services, except the necessary expenses for postage and transportation.

The *Literary Bureau* will arrange and direct courses of reading and will help the reader in any problem or difficulty. To school reading circles it will also, as far as possible and consistent with the best interests involved, send out books and magazines from the University libraries.

County Superintendents, Principals of Schools, and others, are requested to communicate with Professor Rolfs, Director of Extension Work, or with the President of the University, stating in what feature they are most interested. They will then receive more detailed and explicit information.

The *Lecture Bureau* will, on request, arrange to have the President and various members of the Faculty of the University visit the public schools of the State and give lectures either on general educational themes or on the more technical subjects connected with their work. By means of such lectures it is believed that local school life will be quickened, and that the University will be brought into more intimate touch with the people, and hence more fully serve them as a public institution.

During the year arrangements were made for holding lectures in several places in the State. The following have been given, under the auspices of the Methodist Church, to large audiences in Gainesville:

1. "The Philosophy of Clothes;" by Dr. H. W. Cox. 2. "Plant Associations in Florida;" by Director P. H. Rolfs. 3. "The Panama Canal Zone;" by Dr. E. R. Flint. 4. "Astronomy;" by Dr. J. R. Benton. 5. "English Translations of the Bible;" by Dr. Jas. M. Farr. 6. "The State University and Its Ideals;" by Dr. A. A. Murphree. 7. "Flower Pollination;" by Major W. L. Floyd. 8. "Cuba and the Cubans;" by Dr. H. G. Keppel 9. "Goethe's Faust;" by Dr. C. L. Crow.

During the session 1913-1914 the following lectures will be offered:

PRESIDENT MURPHREE:

1. The State and Free Schools.
2. Education and Citizenship.
3. Agriculture and the Public Schools.
4. Psychology Applied to Teaching.
5. Does College Education Pay?
6. The Function of the State University.
7. History of Higher Education in Florida.
8. The University of Florida (Illustrated).

DR. FARR:

1. Chaucer and His Times.
2. The Early English Drama.
3. Browning and Tennyson.
4. The Novel in English.
5. The South in American Literature.

DR. THACKSTON:

1. Tne Reflex Influence of Teaching.
2. The New Education.
3. Manual Training.
4. Does Education Pay?

DR. FLINT:

1. A Summer in the Canal Zone (Illustrated).
2. Physiology and Chemistry of Digestion.

DR. KEPPEL:

1. A Trip Through Holland (Illustrated).
2. Cuba and the Cubans (Illustrated).

DR. BENTON:

1. Wireless Telegraphy.
2. Invisible Rays.
3. Astronomy (Illustrated).

DR. CROW:

1. Higher Education in Germany and in the United States.
2. German Student Life.
3. Goethe's Faust.

MAJOR FLOYD:

1. Plant Propagation and Selection.
2. Plant Diseases.
3. Micro-organisms of the Garden and Farm.
4. Flower Pollination (Illustrated).

DR. DAVIS:

1. Insects and Disease.
2. Good and Bad Bacteria in Milk.

PROF. VERNON:

Agricultural Instruction in the Schools of Florida—

(a) The Grammar School.
(b) The High School.
(c) The College.

CORRESPONDENCE COURSES IN AGRICULTURE

Although placed under this division for the sake of uniformity, these Correspondence Courses are given under the direction of Dean J. J. Vernon, and are designed to meet the needs of:

1. Teachers and prospective teachers.
2. Farmers and prospective farmers.
3. Farmers' wives, sons and daughters.
4. Others who may be interested.

The position of the farming classes in our social and economic system will materially change when they are as well trained for their life work as those of other callings. The Legislature of 1909 authorized instruction in agriculture in the public schools of Florida, and, therefore, all who choose farming in the future will have had an opportunity of gaining some training designed to fit them for life upon the farm. Few who are now engaged in agricultural pursuits have had such opportunities. Recognizing this, the authorities are striving in every way possible to carry the benefits of the University to every citizen of the Commonwealth. By means of correspondence courses it is hoped to reach a large and deserving body who have heretofore been unable to gain both scientific knowledge and practical training.

Correspondence courses are not as effective as resident study, but they are far better than no educational advantages. They lack the personal factor of the instructor, and most of the benefits of laboratory work and illustrative equipment. On the other hand, with ambitious and industrious persons, such courses develop independence of thought and effective individuality of action. In this respect they are often superior to resident study.

The courses, it is hoped, will eventually cover all phases of rural activity. Only white persons will be accepted. Colored farmers are referred to the Agricultural and Mechanical College for Negroes at Tallahassee.

CORRESPONDENCE COURSE IN AGRICULTURE FOR TEACHERS

The Correspondence Course in Agriculture for Teachers will begin October 1, 1913, and close June 1, 1914. Any person connected with or interested in the educational work of the State may register at any time during the year and may pursue the work as rapidly or as slowly as other duties permit. The course aims to prepare for examinations in elementary agriculture for teachers' certificates, and to fit teachers for giving instruction in nature study and agriculture in the public schools of the State. The work will consist of text-book study and experimental exercises. In order to approximate class-room results, rather elaborate lists of questions, each question embodying in most cases only one idea, will be issued on every lesson. The answers to these questions will be corrected, errors fully explained by the instructor, and the manuscripts returned.

The course is based upon the text-book adopted by the State Superintendent of Public Instruction.

The expense to each teacher will be: Registration fee, $1.00; text-book, 75 cents; equipment for experimental exercises, about 50 cents; and postage on all manuscripts sent to and from the University. The instruction and other necessary literature will be furnished by the University free.

CORRESPONDENCE COURSES IN AGRICULTURE FOR FARMERS

The following courses are offered for the year 1913-14:

1. Elementary Agriculture.
2. Soils.
3. Tillage.
4. Drainage and Irrigation.
5. Manures and Fertilizers.
6. Field Crops (General).
7. Field Crops (Southern).
8. Types and Breeds of Live Stock.
9. Dairy Husbandry.
10. Poultry Husbandry.
11. Animal Breeding.
12. Feeds and Feeding.
13. Citrus Fruits and Citrus Culture.
14. Trucking.

Any course in the list may be selected. It is usually best to pursue one course at a time, upon the completion of which another may be started. Furthermore, a logical order should be followed. A succession of courses may be arranged covering two or more years, thus affording opportunity to acquire during leisure moments a good knowledge of agricultural science.

There is no age limit and no examinations are required. Registration may be made at any time during the year, and the work may be pursued as rapidly or as slowly as the time, ability or inclination of the individual may dictate.

To cover office expenses a Registration fee of $1.00 will be charged for each course. The instruction in all courses will be free. All persons registering for a course will be required to provide themselves with a text-book, and pay the postage on all manuscripts to and from the University.

Those who wish further information, or who desire to register for one of the courses, should communicate with J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida. Upon request an application blank will be forwarded to any address.

INSTITUTES

FARMERS' INSTITUTES.—*Farmers' Institutes* bring directly to the workers of the soil the discoveries of the Agricultural Experiment Station and the latest teachings of the College of Agriculture, and present them so that they can be easily undersood. They are really short courses in Agriculture held in various parts of Florida. In the older States, where they have been held for a number of decades, the teaching is done as carefully as in any college or university. In Florida they have been so systematized that the largest and best results possible are obtained. The amount of this work that can be done in the state depends, however, directly upon the amount of support received.

Equipment.—The Farmers' Institute squads are equipped with the best and most complete appliances. For the lecture work, sixty large charts, each six feet square, are used. These tabulate the lectures in such a way as to make

the main points stand out strongly before the audience. To supplement the charts about one hundred enlarged photographs, illustrating particular points, are carried. As some communities prefer, especially during planting and shipping seasons, to have sessions at night, a stereopticon lantern, equipped for acetylene gas or electrical attachments, is frequently found of use. With it are carried about three hundred views, varied enough to suit the interests of almost any part of the State.

Results.—The results from systematic work in Farmers' Institutes are felt almost immediately in the general improvement of agricultural conditions. In Florida, the activities of the Farmers' Institutes have been coincident with the greatest improvement in crop production the State has ever seen. Taking corn as an illustration, the crop for 1907 was the largest produced up to that time, 4,351,000 bushels. That year 42 sessions of Institutes were held, with a total attendance of 4,491. The average corn production was 9.6 bushels per acre. In 1908, 6,584,000 bushels of corn were produced, at the rate of 10.5 bushels per acre. During this year 54 sessions were held, with a total attendance of 5,576. In 1909 the corn crop amounted to 8,379,000 bushels, with an average production of 12.6 bushels per acre. That year nearly 100 Institutes were held, with a total attendance of about 10,000. During the fiscal year ending June 30, 1911, 192 sessions of Institutes were held, with a total of 19,064 in attendance. The corn production of the State for 1911 rose to 14 bushels per acre, almost a fifty per cent increase of yield per acre since the beginning of systematic Farmers' Institute work.

During the fiscal year ending June 30, 1912, there were 177 sessions, with a total attendance of 42,024. The average corn yield was over 12 bushels per acre, in spite of the most unfavorable season that Florida has experienced for years.

As the majority of the sessions held during this year were in the corn-producing section of the State, and were designed for the betterment of the soil and for the improvement especially of the corn crop, the Institutes must have had more or less beneficial effect upon the production.

Other crops have been similarly improved; but corn, being the largest of the farm crops, serves best for illustrative purposes. And the increased production, due for the most part, or entirely, to better farming methods, has added millions of dollars annually to the revenues of the farmers of the State.

WOMENS' INSTITUTES.—As it is quite as important to disseminate information that will benefit farm homes as it is to teach improved methods of agriculture, *Women's Institutes* are now being held in nearly all the Southern States. The two movements go hand in hand, for better crops and better farms are one step in the direction of better homes. The Women's Institutes are perhaps the more important, for it is well known that farm homes are less likely to be supplied with modern utensils and to be managed properly than are the farms themselves.

Three years ago, with the co-operation of the Department of Home Economics of the State College for Women, the holding of Women's Institutes was begun in Florida. Since then 22 sessions have been held, with a total attendance of 1,758. The demand for them is steadily growing, and where they are conducted in connection with Farmers' Institutes, the attendance of women is always equal to that of men.

COUNTY INSTITUTES AND PRODUCE CONTESTS.—In order to stimulate interest, *Produce Contests* were arranged in connection with Institutes held in Gadsden and Liberty Counties. For each of these contests the Southern Ruralist offered as prizes 50 yearly subscriptions, the Southern Planter 10, and the Progressive Farmer 10. The result was extremely gratifying: nearly all the farmers and their families from fifteen miles around attended; and the exhibits of corn, cane, hogs, poultry, etc., would have been creditable to a county fair.

During the coming year such contests will be held in more places, but always in connection with the more extended sessions known as *County Institutes.*

TRAIN INSTITUTES.—By running in co-operation with

the University of Florida, "Better-Farming Specials" over 1,400 miles, the railroads of the State indicated a year ago their desire to assist in agricultural development. This year, owing to lack of funds, the Extension Division of the University was not able to engage in a similar undertaking. Several trains, equipped and financed entirely by the railroads, were, however, run, although none of these made long trips. As far as possible the Extension Division co-operated in this work, and especially with the G. S. & F. R. R. in its effort to develop the farming lands in Florida through which its trains pass.

The Extension Division also joined the Southern R. R. in the endeavor to interest more farmers in dairying and to put this industry on a better basis. The "Dairy Train" sent out for this purpose had good results. In every way possible, too, it furthered the purposes of the "Good Roads Train."

The "Better-Farming Specials" fill an important niche, and especially do they bring the urban population into closer co-operation with the farming classes.

ATTENDANCE.—During the fiscal year ending June 30, 1912, the attendance on Institutes was considerably increased on account of the large numbers attending these "Better-Farming Specials." The total attendance for the entire year was 42,024, and 338 addresses were delivered, 319 of which were by University officials.

Total attendance at Regular Institutes—10,855 at 106 sessions, as follows:—Men 5,087, Women 2,800, Boys 1,990, Girls 1,455, Teachers 120. Average attendance, 102 per session.

Total attendance at Train Institutes—31,169 at 71 stops, as follows:—Men 17,157, Women 7,604, Boys 3,009, Girls 2,273, Teachers 126. Average attendance, 438 per stop.

SPEAKERS FROM UNIVERSITY OF FLORIDA:—

A. A. Murphree, President, University of Florida.
P. H. Rolfs, Superintendent of Farmers' Institutes.
C. K. McQuarrie, Assistant Superintendent of Farmers' Institutes.
A P. Spencer, Assistant in Extension Work.
J. M. Scott, Animal Industrialist, Agricultural Experiment Station.

A W. Blair, Chemist, Agricultural Experiment Station.
E. W. Berger, Nursery Inspector.
B. F. Floyd, Plant Physiologist, Agricultural Experiment Station.
S. E. Collison, Chemist, Agricultural Experiment Station.
John Belling, Assistant Botanist, Agricultural Experiment Station.
J. J. Vernon, Dean of College of Agriculture.
E. R. Flint, Professor of Chemistry.
J. M. Farr, Professor of English.
G. M. Lynch, Professor of Elementary Education.
Major W. L. Floyd, Professor of Botany and Horticulture.
H. E. Stevens, Plant Pathologist, Agricultural Experiment Station.
J. R. Watson, Entomologist, Agricultural Experiment Station.
O. F. Burger, Asst. Plant Pathologist, Agricultural Experiment Station.
C L. Willoughby, Professor of Dairying and Animal Husbandry.
H. S. Fawcett, Plant Pathologist, Agricultural Experiment Station.

OTHER SPEAKERS:—

W. L. Bucholz, Supt. Public Instruction, Hillsboro County.
F. F. Bingham, Pensacola.
C. S. Bushnell, County President, Farmers' Union.
R. P. Burton, Sales Manager, Florida Citrus Exchange.
G. A. Danley, United States Demonstration Agent.
W. B. Hare, Arcadia.
J. O. Crews, Longbridge.
C. K. Allan, Supt. Public Instruction, Wakulla County.
H. H. Hume, Glen Saint Mary.
M. S. Knight, Lake City.
A. S. Meharg, State Agent, United States Farm Demonstration.
O. L. Mizell, Dukes, County Agent, United States Farm Demonstration.
A J. Mitchell, Director Weather Bureau.
T. D. Owen, Chipley.
R. E. Rose, State Chemist.
E. H. Sellards, State Geologist.
J. L. Shepard, Greensboro.
C. H. Simpson, Milton.
R. W. Storrs, DeFuniak Springs.
G. W. Wiegand, Hilliard.
Edward Conradi, President, State College for Women.
R L. Turner, Supt. Public Instruction, Citrus County.
H. E. Savely, Field Agent, Farmers' Co-operative Demonstration Work, Washington, D. C.
O. H. Benson, Assistant in Demonstration Club Work, Washington, D. C.
Miss Susie V. Powell, State Agent Girls' Tomato Club, Mississippi.
H L. Buckley, Professor of Biology, Ruskin College.
W. N. Conolly, Secy. Board of Trade, Live Oak.
Oswald Schreiner, Bureau Soils, Washington, D. C.
R. A. Young, Bureau Plant Industry, Washington, D. C.
Hiram Byrd, Asst. Health Officer, State Board of Health.
Joseph Y. Porter, Sec. State Board of Health.
W. A. Hendry, Perry.
J. D. Rooney, Asst. Industrial Agent, S. A. L. R. R.
R. E. Grabel, Farm Improvement Agent, G. S. & F. R. R., Charlotte, N. C.
Miss A. E. Harris, Director, Household Economics, State College for Women.
Jack Peters, Demonstration Agent, Lake County Improvement Association.

C F. Dawson, State Veterinarian.
B. F. Bahnsen, Georgia State Veterinarian.
E. M. Nighbert, Expert in Tick Eradication, Washington, D. C.
J. W. Barber, President State Live Stock Association.
F. E. Waldrup, Field Agent, G. S. & F. Railroad.
W. B. Willetts, Maitland.
G. F. Ward, Winter Garden.
L. E. Dozier, Leesburg.
W. R. Newell, Leesburg.
E. H. Mote, Leesburg.
H. H. Duncan, Tavares.
P. M. Miller, Leesburg.
George N. Bressler, Tavares.
G. M. Wakelin, Tavares.

PRESIDENTS AND SECRETARIES OF LOCAL FARMERS' INSTITUTES

Alachua County—

Trenton: C. A. Williams, Pres.; R. H. Jones, Secy.
Bell: J. E. Williams, Secy.
High Springs: A. E. Summers, Pres.
Island Grove: J. R. Shaw, Pres.; H. M. Baker, Secy.

Baker County—

McClenny: W. C. Thompson, Pres.; Tait Powell, Secy.

Bradford County—

Lake Butler: O. L. Mizell, Pres.; H. W. Hodges, Secy.
Oak Grove: J. L. Blackwelder, Pres.; W. H. Kerse, Secy.
Providence: J. D. Stencil, Pres.; P. T. Taylor, Secy.
Brooks: W. H. Andrews, Pres.; T. L. Chaney, Secy.
Heilbron: J. D. McCormick, Pres.; J. E. J. Wainwright, Secy.
Worthington Springs: W. Williams, Pres.; T. B. Edwards, Secy.

Calhoun County—

Blountstown: W. H. Leonard, Pres.; C. L. Hobbs, Secy.

DeSoto County—

Arcadia: C. S. Bushnell, Pres.; W. P. Tucker, Secy.
Bowling Green: Irving Keck, Pres.; J. H. Parrish, Secy.
Lilly: W. B. Roberts, Pres.; J. H. Durrance, Secy.
Wauchula: T. G. Wilkerson, Pres.; T. S. Golden, Secy.
Venus: B. F. Johnson, Pres.; J. M. Frye, Secy.

Escambia County—

Whitmire School: R. E. Jones, Pres.; Mrs. M. H. Fairchild, Secy.
Myrtle Grove School: Mrs. E. M. Graves, Pres.; F. L. Thompson, Secy.
Cottage Hill: G. C. Hardie, Pres.; C. W. McDonald, Secy.
Gonzalez: L. W. Hardie, Pres.; C. J. Hudgins, Secy.

Gadsden County—

Greensboro: Hon. J. L. Shepard, Pres.; M. N. Smith, Secy.
Havana: A. J. Smith, Pres.; C. D. Wilcox, Secy.

Hamilton County—

Jennings: B. W. Wells, Pres.; B. J. W. Blair, Secy.

Hillsboro County—

Knight's Station: W. P. Campbell, Pres.; J. J. Bradford, Secy
Riverview: W. T. Galloway, Pres.; Dr. Lewis Symmes, Secy.
Hopewell: Robert McDonald, Pres.; C. H. Buggs, Secy.
Ruskin: L. L. Dickman, Pres.; H. L. Buckley, Secy.

Holmes County—

Bonifay: J. McLaughlin, Pres.; W. A. Sessoms, Secy.

Jackson County—

Greenwood: W. B. Bryan, Secy.
Marianna: C. E. Pledger, Pres.; C. B. King, Secy.
Malone: B. H. Hatton, Pres.; E. E. Anderson, Secy.

LaFayette County—

Mayo: D. C. Geiger, Pres.; J. J. Handley, Secy.

Lake County—

Clermont: C. H. Wilson, Pres.; H. E. Cook, Secy.

Liberty County—

Bristol: Dr. E. K. Thagard, Pres.; D. H. Freeman, Secy.

Madison County—

Hickory Grove: Blake McLeod, Pres.; B. M. Williams, Secy.

Marion County—

Fort McCoy: H. W. Pilsbury, Pres.; Miss M. H. King, Secy.
Reddick: H. E. Tinker, Pres.; L. S. Light, Secy.
Morriston: Lauton Priest, Pres.; L. T. Hendris, Secy.
Summerfield: A. M. Buser, Pres.; H. R. L. White, Secy.

Nassau County—

Hilliard: J. H. Topper, Pres.; Geo. A. Kraemer, Secy.
Callahan: W. W. Cushing, Pres.; D. H. Petree, Secy.

Orange County—

Zellwood: C. H. Baker, Pres.; Wm. Edwards, Secy.
Cameron City: C. C. Worthington, Pres.; Miss Neva Gormley, Secy.
Taft: C. W. Tharp, Pres.; J. G. Barron, Secy.

Osceola County—

St. Cloud: F. P. Wentworth, Pres.; W. P. Lynch, Secy.

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Ft. Meade: R. W. Hancock, Pres.; Kline O. Varn, Secy.
Lakeland: Judge W. S. Preston, Pres.; Dr. W. H. Conibear, Secy.

Putnam County—

Mannville: H. T. Mann, Pres.

Santa Rosa County—

Milton: C. H. Simpson, Pres.; S. J. Harvey, Secy.
Baker: John Wilkerson, Pres.; J. L. Miller, Secy.
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Camp Walton: W. H. Hargrove, Pres.; F. P. Strong, Secy.

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Live Oak: W. J. Hillman, Pres.; Jack Hawkins, Secy; W N. Conolly, Secy. Board of Trade.

St. Johns County—

St. Johns Park: E. F. Warner, Secy.

Taylor County—

Perry: J. C. Calhoun, Sr., Pres.; W. A. Hendry, Secy.

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Sopchoppy: C. K. Allan, Secy.
Medart: C. B. Pigott, Pres.; T. B. Green, Secy.

Washington County—

Chipley: J. R. McColsky, Pres.; C. E. Pleas, Secy.
Lynn Haven: W. R. S. Burnett, Pres.; Frank McMullen, Secy.
Santa Rosa: W. M. Wilson, Pres.; A. B. Cessna, Secy.

FARM DEMONSTRATION WORK

In October 1911, the U. S. farm demonstration agents of Florida assembled at the University to attend a series of lectures by professors in the Extension Division, Agricultural Experiment Station, and College of Agriculture. A similar one-week course will be offered this fall.

Florida has one county agent in each of twenty-four counties. Each has been selected from among the farmers in the respective counties by the special agents of the United States Department of Agriculture, Washington, D. C. The special agents in charge believe that, if the county agents are to be leaders, they must be inspired and instructed for the particular work entrusted to them. They must have the spirit of initiative and sufficient information to carry out their plans.

The short course is planned to meet the needs of these workers, and should prove very valuable to the various counties, since the demonstration agents will carry back inspiration as well as some of the most important information on agriculture.

CO-OPERATION WITH COUNTY CROP IMPROVEMENT ASSOCIATIONS

The formation of County Crop Improvement Associations is, from the standpoint of agricultural development, a movement of great significance. The plan by which these are to be handled follows closely the suggestions of the Farmers' Institutes. Each local association plans to employ its own agricultural expert, whose duty it shall be to oversee the farming interests of his county, to visit and acquaint himself with as many farmers as is practicable, and be ready to offer suggestions and advice about their problems. For such information as he may not have, he shall call on the Agricultural Experiment Station or other reliable source. Such associations, organized in Lake, Suwannee and Escambia counties, have applied to the Extension Division for counsel and suggestions.

FIELD INSTRUCTION

There is an increasing demand from farmers for the assistance of an expert to go into the field and suggest methods of planting, tillage, and soils best adapted for certain crops. The Extension Division has been able to handle this only in a limited way; nevertheless, it is valuable work and should be encouraged. During the past two years this field instruction has been given in a few localities and made effective by having a number of farmers gather in one field in a centrally located community. It seems best to spend two days in a community, the second day to visit other farms to offer suggestions where needed. Such problems as farm drainage, best rotations, market conditions, or insect pests, can be discussed in a much better manner, when all of the facts are obtainable and the objects actually handled by the farmers themselves. The results of such Extension Work have been most encouraging.

FARMERS' INFORMATION

Hardly a day passes during the year that one or more visitors do not find their way to the Extension Offices in search of information about Florida, soils, fertilizers, crops

suitable for different localities, etc. It is the policy to give the latest and best information on the subjects, and when practicable to visit farm lands in question, and thereby encourage proper methods of agriculture.

A large percentage of the visitors in search of such information consists of out-of-state farmers who have recently purchased or intend to purchase land in Florida. When such visitors leave the Institution they have a more intelligent view of Florida conditions. With the additional aid of the Agricultural Experiment Station Bulletins to follow, and a personal acquaintance with the Staff, they can, by corrrespondence, avoid serious errors that would lead to discouragement and failure.

The farmers' correspondence is taken care of in a similar manner. A large part of the mail matter consists of requests for information on soils, crops, insect pests, fertilizers, sugar-cane, etc. These letters are answered by those best qualified in the subject, so that the inquirer may receive the best and most practical information.

At each Institute the farmers are urged to keep in touch with the Agricultural Experiment Station work, and to write for any needed information.

BOYS' CORN CLUBS AND GIRLS' GARDENING AND CANNING CLUBS

The Boys' Corn Clubs were started in 1910 as a co-operative enterprise between Dr. J. L. Kelley, School Superintendent of Alachua County, and the College of Agriculture. Mr. T. K. Godby, of Waldo, furnished free seed. During 1910 and 1911 the Farmers' Institute forces assisted in many of the meetings and during the latter year shared with Mr. Godby in furnishing seed.

In 1911 Mr. A. S. Meharg, State Agent Farmers' Co-operative Demonstration Work of the United States Department of Agriculture, started Boys' Corn Clubs in several counties where there were agents. In 1912 the *Girls' Gardening and Canning Clubs* were added.

The Boys' and Girls' Club Work for 1913 will be carried on in co-operation between the United States Depart-

ment of Agriculture, on the one hand, and the College of Agriculture of the University of Florida and the Department of Home Economics of the Florida State College for Women, on the other.

Boys and girls between ten and eighteen years of age are eligible to membership. Each boy is required to grow one acre of corn and each girl one-tenth acre of tomatoes and other vegetables. Various prizes are offered.

The awards for the boys are made upon the following basis:

		Per cent
1.	Greatest yield per acre	30
2.	Best exhibit of ten ears	20
3.	Best written account showing history of crop	20
4.	Best showing of profit on investment, based on the commercial price of corn	30
	Total	100

Richard Miller, of Baker, Santa Rosa County, won the State Championship in 1912, with a yield of 129¼ bushels of corn at a cost of 26 cents per bushel. He received in prizes a free trip to Washington, D. C., and fifty dollars cash, the latter being offered by H. G. Hastings & Company, Seedsmen, Atlanta, Georgia.

The awards for the girls are made upon the following basis:

		Per cent
1.	Quality	20
2.	Quantity	20
3.	Variety	20
4.	Profit	20
5.	History	20
	Total	100

It will be seen that the work is both practical and educational. There were nearly 100,000 members registered in the Boys' and Girls' Clubs in the Southern States in 1912. The purpose of the movement is too well known and its success too apparent to need further comment. The benefits are immediate and will also be cumulative. The movement has received generous support and assistance, due no doubt to its close touch with the home-life of our farmers.

All communications relating to the Boys' Corn Clubs should be addressed to J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida; relating to the Girls' Clubs, to Miss Agnes Ellen Harris, Director Department of Home Economics, Florida State College for Women, Tallahassee, Florida.

PUBLICATIONS

The publications of the Extension Division differ from the bulletins of the Agricultural Experiment Station only in that they are compiled from observations, or from publications that have been issued as Experiment Station Bulletins. Their main purpose is to meet pressing needs. To illustrate: a press bulletin on corn planting was issued just previous to the planting season of 1912. Farmers' Institute Bulletin No. 3, dealing with sixteen pertinent topics, has been in constant demand since it was issued, and, although 20,000 copies have been published, there is an insufficient number on hand to supply the requests this year. This bulletin is a series of articles on farm topics from members of the Extension Staff and the Experiment Station, and other authorities. Bulletin 112, on Tomato Insects, Root-knot and White-mold, was issued to meet a pressing demand for information by tomato growers.

The members of the Extension Staff contribute liberally to the public press, and disseminate much useful information in this way.

The College of Agriculture

OF THE

UNIVERSITY OF FLORIDA

Offers Courses of Study Suited to Every Condition and Need

The young man in the future who is struggling along on the farm, ignorant of the fundamental principles that underlie farm practice cannot say he had no opportunity. The opportunity is here. The following Courses are offered:

A Four-year Collegiate Course
A Two-year Short Course
A One-year Short Course
A Four-month's Farmers' Short Course
A Four-week Farmers' Short Course
Fourteen Correspondence Courses for Home Study

For special information or catalogue, address

J. J. VERNON
Dean of the College of Agriculture, University of Florida
GAINESVILLE, FLORIDA

Vol 8 September 1913 No 2

University of Florida

GAINESVILLE

Normal School and Teachers' College

Spring Review Course
A One-Year Course
A Two-Year Elementary Professional Course
Regular Four-Year Normal Course
Course Leading to an A.B. Degree in Education
Course Leading to a B.S. Degree in Education
The Summer School

Announcement
1913-1914

NORMAL SCHOOL AND TEACHERS' COLLEGE

FACULTY

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M. B. HADLEY, A.B.,
Librarian.

W. S. PERRY, A.B.,
Instructor in Physics.

IRA D. ODLE, B.S.,
Instructor in Botany and Bacteriology.

R. S. BLANTON, A.B.,
Teaching Fellow in Mathematics and History.

LOCATION OF THE UNIVERSITY

Gainesville, the seat of the University, a town of 10,000 inhabitants, possesses numerous advantages. It is centrally located and easy of access, being reached by the leading railroads of the State. It has well paved, lighted and shaded streets, an exceptionally pure water supply and a good sewerage system. The citizens are energetic, progressive and hospitable. The moral atmosphere is wholesome, and for many years the sale of intoxicants has been prohibited by law. All the leading denominations have attractive places of worship. The Chautauqua and Bible Conference held during the winter form valuable adjuncts to the University.

GROUNDS AND BUILDINGS

The University occupies a tract of five hundred and eighty-nine acres, situated in the western extremity of Gainesville. Ninety acres of this tract are devoted to the campus, drill-ground, and athletic fields; one hundred and seventeen acres are utilized for the farm of the College of Agriculture; the remainder is used by the Agricultural Experiment Station.

Eleven buildings have already been erected. These are, in the order of construction: Two dormitories, known as

"Buckman Hall" and "Thomas Hall;" the Mechanic Arts Shop; Science Hall; the Agricultural Experiment Station Building; Engineering Hall; the Gymnasium; the Agricultural College Building; the dining hall or "University Commons;" Language Hall; and the "George Peabody Hall," the home of the Teachers' College and Normal School. They are lighted with electricity, supplied with city water, and furnished with modern improvements and equipments.

STATEMENT OF EXPENSES FOR WHOLE YEAR

Tuition.—For residents of Florida	$ 00.00
Registration Fee	5.00
For Spring Review and One-Year Course Students	00.00
Damage Deposit	5.00
If no damage is done to University property this fee is returned to student at end of year.	
Infirmary Fee	3.00
Board and Lodging, per session	124.50

For fuller particulars of expenses, see pages 39-41 of general catalogue.

GENERAL STATEMENT

It is the purpose of the Teachers' College and Normal School to prepare teachers for the public schools of Florida. It aims to give that training that will properly fit men to teach in and become principals of grammar and high schools, to be supervisors, county and city superintendents; to give that information, insight and appreciation of our educational problems and principles that each intelligent citizen of every community should possess, and to prepare teachers in the Review Courses for the County and State certificates. This college is the professional school for teachers in the University and aims to bend every effort toward giving the State a supply of trained teachers.

PEABODY HALL.—The new Peabody Hall, the home of this college, is a magnificent, three-story brick and stone structure. It is modern in every respect as to equipment and arrangements. It contains all the lecture rooms, society

halls, reading rooms, laboratories and libraries that a modern college of this kind needs. With such facilities at its command nothing can hinder the college from realizing its aims.

LIBRARY.—The pedagogical library receives many of the best educational journals and is supplied with the standard books on educational theory, general and special methods, the history of education, psychology and philosophy. Additions will be made to these during the coming fall.

PSYCHOLOGICAL LABORATORY.—The new Psychological Laboratory is placed in the Peabody Hall. This will give teachers a wonderful opportunity to investigate at first hand the great laws of the mind. To know these through experiment will give the teacher a far greater power to direct properly their development in the child. The laboratory will contain all of the appliances and apparatus necessary for thorough and efficient work in experimental psychology.

THE PEABODY CLUB.—This club is an organization of the teachers of this college. It meets once a week and discusses educational problems. The new building will provide a special hall for it, and then the good work that has been carried on by this club will be better even than formerly. Every teacher in this college is expected to become a member of it and lend his best efforts toward making it a greater success. No part of the college work is more important than this.

TEACHERS' EMPLOYMENT BUREAU.—It is the purpose of this Bureau to keep records of all teachers who have attended the University who are fitted by their training for the profession of teaching and to recommend them to school boards who are in need of efficient principals and teachers. Already the demand for our graduates and students is greater than we can supply. County superintendents and school boards are requested to correspond with us when in need of well-trained and efficient teachers.

CORRESPONDENCE COURSES FOR TEACHERS.—The Teachers' College is now preparing courses in Education which

may be taken by teachers by correspondence. These courses will outline work in School Management, General and Special Methods of Teaching the different elementary and grammar school subjects, Psychology, History of Education and other similar subjects. Besides these, it is planned to offer correspondence courses in some of the regular academic subjects. Reading courses will also be suggested, for the completion of which certificates will be given. All of these courses should appeal to teachers who are ambitious to advance their knowledge along special lines and who are not able to quit their work to attend school or college.

For full particulars concerning this correspondence work address Dean Jno. A. Thackston.

These courses are open to all white teachers.

THE NORMAL SCHOOL

OUTLINE OF COURSES AND REQUIREMENTS FOR ADMISSION

The Normal School offers four courses:

Course 1.—Spring Review Course. This course covers the subjects required for the County and State Certificates. Both the contents and methods of teaching these subjects will be given. This course is for those who are engaged in teaching from four to six months in the year, and who want to renew, or advance the grade of their certificates. No requirements for admission demanded. Anyone who can profit by such a course will be gladly welcomed.

CURRICULUM, SPRING REVIEW
COUNTY CERTIFICATES

Names of Courses	Nature of Work	Hours of Work	Description, See Page
Agriculture		2	7
Algebra		4	7
Arithmetic		4	7
Civil Government		2	8
English Composition		2	8
English Grammar		2	8
Hygiene		2	8
Pedagogy		2	8
Physical Geography		3	8
Political Geography		2	8
Orthography		2	8
Reading		1	9
U. S. History and Fla. History		3	9

STATE AND SPECIAL CERTIFICATES

The work for the State and Special Certificates in the Spring Review will be found in the Regular Four-Year Normal Course. For an outline of this see pages 12-16.

DESCRIPTION OF COURSES OF STUDY

AGRICULTURE, S. R.—A general course in agriculture. This will introduce the student to the study of soil, plants, common diseases of plants, insects, farm crops, domestic animals, and such like. This will be done by means of text-books, laboratory and field work. Methods of teaching agriculture in the rural schools will be stressed. (2 *hours.*)

ALGEBRA, S. R.—Elementary course covering the fundamental operations, simple and simultaneous equations, factoring, fractions, involution and evolution, quadratic equations, progressions, ratio and proportion. This work will be closely correlated with the work in arithmetic. (4 *hours.*)

ARITHMETIC, S. R.—A thorough review of arithmetic is made, that the student may view it from both the teacher's and child's point of view. Common and decimal fractions, denominate numbers, percentage, and all other subjects covered by the text-book adopted by the State. Principles and methods of teaching arithmetic are thoroughly gone over. (4 *hours.*)

CIVIL GOVERNMENT, S. R.—Special attention will be given to local, town and city, and county governments. That practical information that every intelligent citizen should have is stressed. The State and national governments. General interest in government is aroused. How to teach subject. (2 *hours.*)

ENGLISH COMPOSITION, S. R.—In this, words, sentences, paragraphs, and whole compositions are studied. Narration, description, exposition and argument. Punctuation and spelling receive attention. Many written compositions required. Letter-writing. (2 *hours.*)

ENGLISH GRAMMAR, S. R.—Sentences and parts of speech. Inflection. Familiarity with the forms demanded. Syntax. Structure and analysis of sentences. Principles and methods of teaching grammar. (2 *hours.*)

HYGIENE, S. R.—A general survey of the body and its organs. The functions and use of the organs. Special efforts to impress the teacher with the importance of hygiene and sanitation. How to keep well and physically efficient is the special aim of this course. (2 *hours.*)

PEDAGOGY, S. R.—School management, general and special methods of teaching, elementary principles of child nature, school hygiene and sanitation, personality of teacher, relation of school and community, and other practical pedagogical questions. (2 *hours.*)

PHYSICAL GEOGRAPHY, S. R.—The main features of the ordinary text-book in physical geography will be studied. Along with this stress will be placed on the effects the physical features have on man and his life, his commercial and social life. This will be correlated with agriculture. (3 *hours.*)

POLITICAL GEOGRAPHY, S. R.—Special attention will be given to Florida and its relations to other states. A thorough review of the geography of the United States and the world. Instruction will be given in the use of text-books, maps, globes, industrial products, stereoscope, post-cards and newspapers. (2 *hours.*)

ORTHOGRAPHY, S. R.—The spelling of common words

will be stressed. Correct spelling in all forms of written work demanded. How best to teach spelling. (2 *hours.*)

READING, S. R.—Practice in reading required each week. Teachers are so drilled in reading that they will be able to read well to their classes. Story-telling is also brought in in connection with this work. The methods and principles of teaching reading are given. (1 *hour.*)

U. S. AND FLORIDA HISTORY, S. R.—A thorough review of United States and Florida history. Methods of teaching them and their correlation with geography and literature. Special notice will be given to biography and the topic method of study. (3 *hours.*)

The text books adopted by the State will be used as the basis for the work of Courses 1 and 2.

Course 2.—A One-Year Course. This course covers same work as Course 1, but is gone over more slowly. It is planned for those students who need more time than Course 1 requires. It may be entered at any time during the year. Teachers will find classes suited to their special needs at any time during the session. No requirements for admission demanded. Any teachers who can profit by such a course will be admitted.

See under Course 1 for a description of the work to be done in this course. Hours and classes will be arranged to suit the needs of the students.

Course 3.—A Two-Year Elementary Professional Course. This course includes all of the subjects taught in the elementary and rural schools. It also gives special attention to methods of teaching, school management, rural problems, and such professional subjects as will make rural and grammar school teachers more efficient. Applicants who hold teachers' certificates, or who have finished the eighth grade of our grammar schools, will be admitted to the first year of this course. On the completion of this course students will be admitted to the first year of the regular four-year Normal Course.

CURRICULUM, TWO-YEAR ELEMENTARY PROFESSIONAL COURSE.

First Year.

Name of Course	Nature of Work	Hours per Week	Description, See Page
Education	Reviews and Methods of Teaching Political Geography, U. S. History and Fla. History	4	10
English	Grammar, Composition and Classics	4	11
History	Ancient History	4	11
Mathematics	Algebra	4	11
Science	Physical Geography and Physiology	4	11

Second Year.

Education	Reviews and Methods of Teaching Arithmetic and English Language	4	10
Education	School Management and Rural Problems	4	198*
English	Composition and Classics	4	11
Mathematics	Algebra	4	11
Science	Agronomy and Horticulture	3	11-12

EDUCATION 2-YR. I.—*Reviews and Methods of Teaching U. S. and Florida History and Political Geography.*—Thorough and complete reviews of these three subjects are made. The work is broader and more advanced than that of the eighth grade, and is always looked at both from the teachers' and pupils' points of view. History receives the attention in the fall, while geography is taken up in the spring. After mastering the subject matter, the methods of presenting it to a class are given. (4 *hours.*)

EDUCATION 2-YR. II.—*Reviews and Methods of Teaching Arithmetic and English Language.*—Thorough and complete reviews of these subjects are made. All of the difficult parts of arithmetic are taken up and fully explained. Language is treated in the same way. Both subjects are made practical and directly helpful. Methods of teaching are given for each subject after the reviews are completed. (4 *hours.*)

*See General Catalogue.

ENGLISH 2-YR. I.—*Grammar, Composition and Classics.* —A thorough course in advanced grammar will be given (*twice per week*). Composition, oral and written. At least one written composition every week. Special attention will be given to narration. Classics, College Entrance Requirements and those best suited for the upper grades of the grammar school and ninth grade of high school. Special attention given to spelling and letter-writing. (4 *hours.*)

ENGLISH 2-YR. II.—*Composition and Classics.*—A text-book in composition used as guide (*twice per week*). Description and narration will receive the major part of the time. Oral and written composition. One written composition each week. Classics (*twice per week*). Those suited to grade and high school work. Spelling and letter-writing.

HISTORY 2-YR. I.—*Ancient History.*—The major part of the time will be given to the study of the history of Greece and Rome. Special note will be made of hero stories, biography, mythology, and that which appeals to the child in the grades. Reference reading will be required in connection with the topics of the text-books. (4 *hours.*)

MATHEMATICS 2-YR. I.—*Algebra.*—This is a beginners' course and it will cover the work through elementary quadratics. (4 *hours.*)

MATHEMATICS 2-YR. II.—*Algebra.* A good, thorough review of algebra to quadratics, and then quadratics and the remaining part of an ordinary second-year algebra. (4 *hours.*)

SCIENCE 2-YR. I.—*Physical Geography and Physiology.* The work in physical geography will be about as outlined in the newer secondary school geographies. The proper correlation of physical with political and commercial geographies will be made. This is especially necessary for teachers. Laboratory and field work will be done and notes kept of all observations and experiments. Physiology will be given one semester and will cover a practical course in physiology, sanitation and hygiene. Laboratory work with notes required. (4 *hours.*)

SCIENCE 2-YR. II.—*Agronomy and Horticulture.*—Agron-

omy will be a study of soils and soil fertility in their relations to plant growth and the underlying principles governing the production of field and forage crops. (*First semester*). The horticulture is a study of varieties and culture requirements of our principal fruits and vegetables; location of orchards and gardens with reference to soils, climate and markets; protection from insects and diseases; harvesting and marketing; styles of decorative planting adapted to home and school. (3 *hours.*)

Course 4.—Regular Four-Year Normal Course. This course will offer work similar to that of the standard Normal Schools of this country. Applicants who have finished the first two years of a high school will be admitted to the first year of this course. High school graduates will be allowed to enter the third year of this course. Graduates of the Normal School will be admitted to the Junior Class of Teachers' College. Under recent Act of the Legislature, graduates of the Normal School will be given State Certificates without further examination. This State Certificate will be convertible into a Life Certificate in the usual way.

CURRICULUM, REGULAR FOUR-YEAR NORMAL COURSE

First Year

Name of Course	Nature of Work	Hours per Week	Description, See Page
English NI	Rhetoric, Composition and Classics	4	14
History NI	Mediaeval and Modern History	4	14
Mathematics NI	Plane Geometry	4	16
Take from 6 to 8 hours of the following:			
Latin NI	Beginners' Course	4	15
French NI	Beginners' Course	4	14
Science NI	Physics	4	17
Mehanic Arts I	Woodwork	3	15
Agriculture NI	Elements of Agronomy and Horticulture	3	198*
Required		18 to 20	

*See General Catalogue.

Second Year

Name of Course	Nature of Work	Hours per Week	Description, See Page
English NII	American and English Literature and Composition	4	14
History NII	American History and Civics	4	15
Take from 11 to 12½ hours of following:			
Latin NII	Caesar (4 books) and Composition	4	15
Mathematics NII	Plane Trigonometry and Solid Geometry	4	16
French NII	Second Year Course	4	14
Agriculture NII	Elements of Animal Husbandry and Agricultural Engineering	3	198*
Mechanic Arts III*a* and IV*b*	Forge and Foundry Work	4½	16
Required		19 to 20½	

Third Year

Education I*a*	Psychology	3	189*
Education II*b*	Methods of Study		
Education 2-yr. I	Reviews and Methods of Teaching U. S. and Florida History and Political Geography	4	10
English I	Rhetoric and Composition	3	79*
Take 6 hours of following:			
French I	Elementary Course	3	92*
German I	Elementary Course	3	92*
Latin NIII	Cicero, Composition and Grammar	3	15
Mathematics	Plane Analytic Geometry and College Algebra	4	89*
Physics	General Physics	3	96*
Agronomy I	General Agriculture	3	116*
Botany I	General Botany	3	76*
Chemistry I	General Chemistry	3	77*
History I	Modern European	3	83*
Required		16	

Fourth Year

Education III*a*	Reviews and Methods of Teaching Arithmetic and Grammar	3	189*
Education IV*b*	School Management and Supervision		189*
Education V*a*	History of Education	1½	190*
Group II†		3 or 6	
Group III		3 or 6	
Group IV		3 or 6	
Required		16½	

*See General Catalogue. †See Groups under Teachers' College, p. 19.

DEPARTMENTS OF INSTRUCTION

ENGLISH

MR. HATHAWAY

ENGLISH NI.—*Rhetoric, Composition and Classics.*—The formal rules of rhetoric will be studied in so far as they are needed in composition work and the study of the classics. Compositions written every week. Exposition stressed. Classics two hours per week. College Entrance Requirements. Spelling and letter-writing. (*Both semesters; third year; 4 hours.*)

ENGLISH NII.—*American and English Literature and Composition.*—Most of the time of this class will be devoted to the study of literature and not to the history of literature. Much reading will be required. Compositions one per week. Argumentation stressed. Spelling and letter-writing. (*Both semesters; fourth year; 4 hours.*)

FRENCH

ASSISTANT PROFESSOR CAWTHON

FRENCH NI—*First Year.*—Pronunciation and reading aloud, dictation and conversation, the auxiliary and regular verbs, irregular verbs used daily, simple constructions and grammar. The reading of simple selections. (*Both semesters; third year; 4 hours.*)

FRENCH NII.—*Second Year.*—Work of first year continued. Translations from English to French, grammar and elements of syntax, short written compositions, dictation, conversation, reading of selections. (*Both semesters; fourth year; 4 hours.*)

HISTORY

MR. HATHAWAY AND MR. BLANTON

HISTORY NI.—*Mediaeval and Modern History.*—This begins with the time of Charlemagne and comes down to the

present. Mediæval history will be touched lightly, while stress will be placed upon English history. Text-book and reference reading required. (*Both semesters; second year; 4 hours.*)

HISTORY NII.—*American History and Civics.*—A general survey from the early discoveries to the present time. Text-book and reference reading required. The work in Civics will be studied in connection with the history so far as possible. Stress will be laid upon the study of local history and geography in Florida, local industries, transportation and communication, organized community life and public health, local, state and national governments. Text-book used. (*Both semesters; fourth year; 4 hours.*)

LATIN

MR. HATHAWAY

LATIN NI.—*Beginner's Latin.*—A good first-year book will be studied and completed. (*Both semesters; first year; 4 hours.*)

LATIN NII.—*Caesar, Composition and Grammar.*—Four books of Cæsar will be carefully read. Prose Composition and Grammar once per week. (*Both semesters; second year; 4 hours.*)

LATIN NIII.—*Cicero, Composition and Grammar.*—Six orations of Cicero will be read in class. Prose composition and grammar once per week. (*Both semesters; third year; 4 hours.*)

LATIN NIV.—*Virgil, Composition and Grammar.*—Six books of Virgil. Prose composition and grammar once per week. (*Both semesters; fourth year; 4 hours.*)

MANUAL TRAINING

PROFESSOR WIECHARDT

MECHANIC ARTS I.—*Wood Work.*—First is given an elementary course in laying out work, and in the use of the ordinary hand tools, such as saws, chisels and planes. The student is next taught the use of the turning lathe, turning by himself a series of patterns; then he is taught the care

and use of wood-working machinery, such as the rip-saw, cut-off saw, band-saw, and planer. (*Required of all Engineering students; first semester; Freshman year,* 6 *actual hours counting as* 3 *nominal hours.*)

MECHANIC ARTS II*b*.—*Elementary Wood Carving and Furniture Construction.*—Herein is applied the skill, knowledge, and experience obtained in the first semester's work, and each student will be required to design and construct a piece of furniture, or other approved article involving carving, turning or joinery as a passing piece. (*Required of all Engineering students; second semester; Freshman class;* 6 *actual hours weekly.*)

MECHANIC ARTS III*a*.—*Forge Shop.*—Practice work is first given so as to develop proficiency in the use of the hammer. The student then makes articles of intrinsic value, such as foundry tools, hammers, cold chisels, lathe tools, turning chisels, drawknives, and screw-drivers. He acquires skill in forging, welding, dressing, tempering and annealing. (*Required of all Electrical and Mechanical Engineering students; first semester; Sophomore year;* 6 *actual hours weekly.*)

MECHANIC ARTS IV*b*.—*Foundry Practice.*—Foundry practice will be given in the second semester, by text-book, or lectures. (*Required of all except Civil Engineering students; second semester; Sophomore year;* 3 *actual hours counting as* 1½ *nominal hours.*)

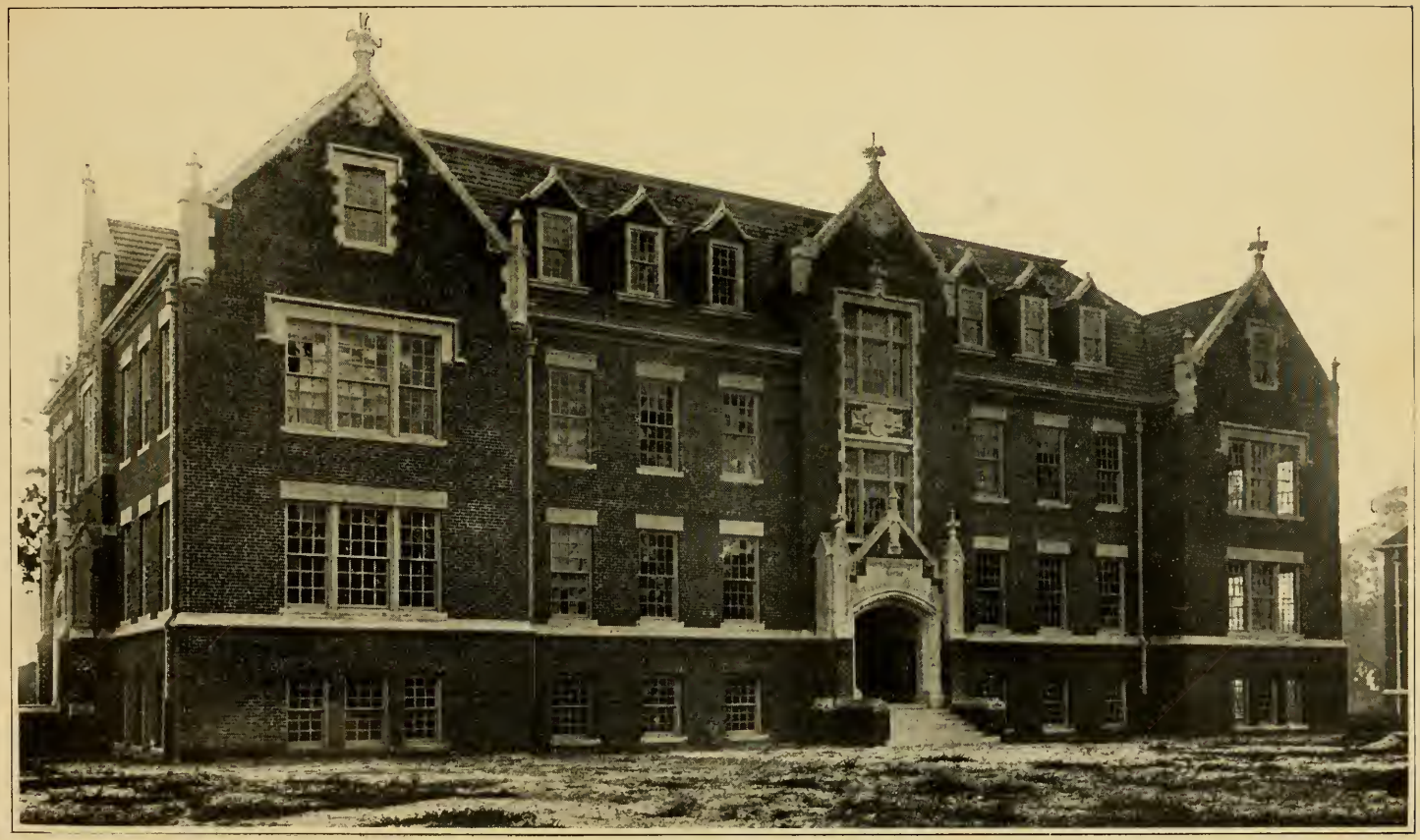
MATHEMATICS

ASSISTANT PROFESSOR CAWTHON AND MR. BLANTON

MATHEMATICS NI.—*Plane Geometry.*—The first five books in plane geometry. (*Both semesters; third year;* 4 *hours.*)

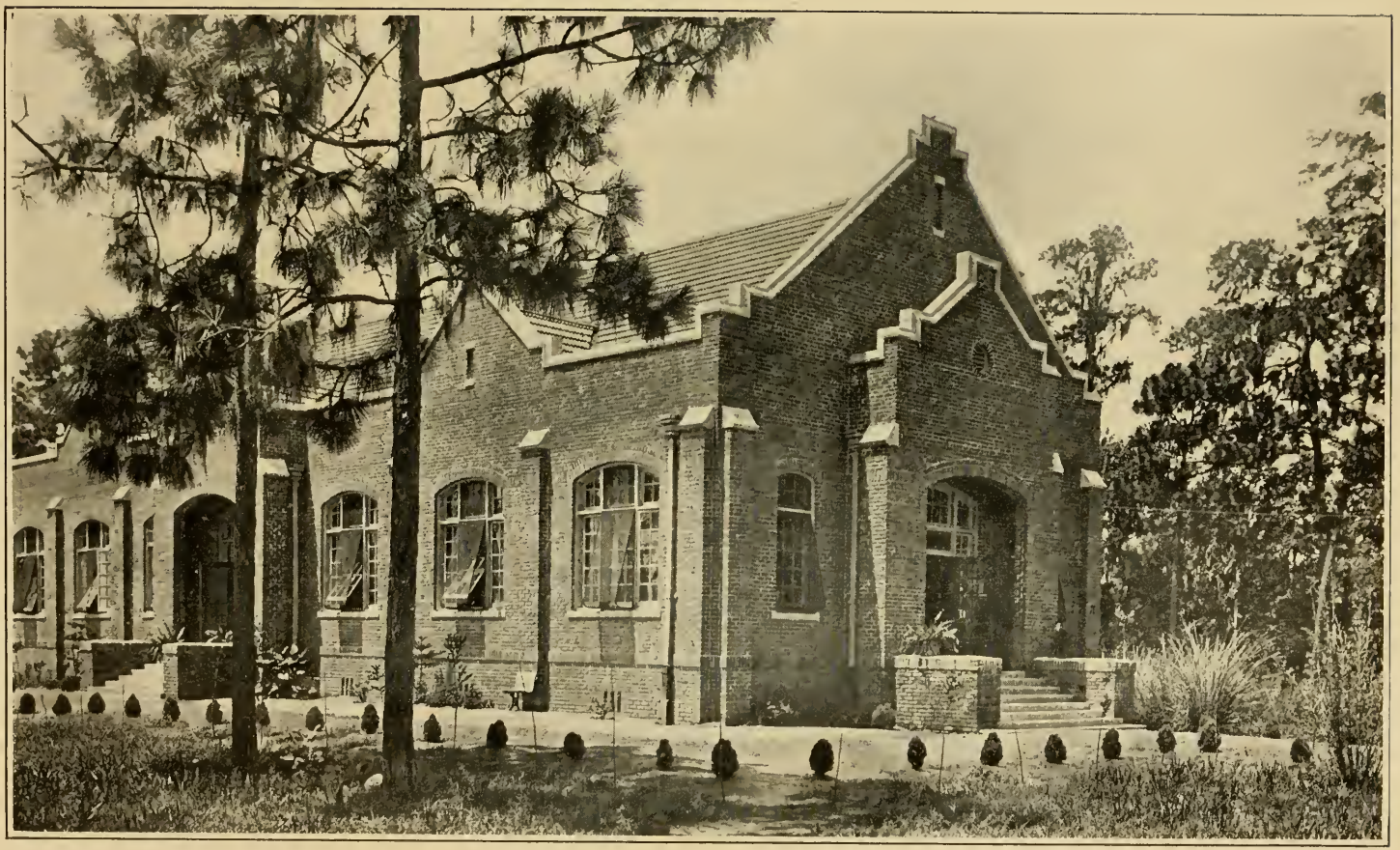
MATHEMATICS NII.—*Solid Geometry and Plane Trigonometry.*—During the first half of the year solid geometry is studied. In the second half plane trigonometry is taken. (*Both semesters; fourth year;* 4 *hours.*)

The above courses in Mechanic Arts are reprinted from general catalogue.



Peabody Hall

Peabody Club



The Commons

Group of Summer School Students 1913

PHYSICS

ASSISTANT PROFESSOR CAWTHON

SCIENCE NI.—*Physics.*—Elements of physics, with problems and laboratory work. Carefully kept note-books required. (*Both semesters; third year;* 4 *hours.*)

TEACHERS' COLLEGE

The Teachers' College offers two courses:

One of these courses leads to an A. B. degree in Education, and the other to the B. S. degree in Education. To be admitted as a candidate for this degree, applicants must be graduates of Senior High Schools to meet the requirements for admission to the Freshman Class. (See pp. 46-56 of general catalogue for full description. Catalogue will be sent on application.) Graduates of the regular Normal School Course are admitted to the Junior Class of Teachers' College, and may go on to these degrees in two years. Graduates of Teachers' College are granted State Certificates without further examination. Such certificates are convertible into Life Certificates in the usual way.

ELECTIVES.—That graduates may be well prepared to teach two or three of the high school subjects, nine hours of electives are offered in both curricula in the junior and senior years, respectively. In choosing these electives the student is required to elect those special studies which he prefers to teach and to make himself especially proficient in them by pursuing them two consecutive years. All electives must be chosen after consultation with the Dean. For the A.B. degree the major elective work must be chosen in Groups II and III, or Groups II or III. For the B.S. degree the major electives must be chosen from Group IV.

The foreign language chosen in the Freshman year must be pursued through the Sophomore year.

CURRICULUM

Leading to the Degree of Bachelor of Arts or Bachelor of Science in Education.

Freshman

Names of Courses	Nature of Work	Hours per Week	Description, See Catalogue Page
Education I*a*	Psychology	3	189
Education II*b*	Methods of Study		189
English I	Rhetoric and Composition	3	79
French I or German I or Latin I	Elementary Course / Elementary Course / Cicero, Comp. and Gram.	3	92 / 92 / 72
Mathematics I	Solid Geom. and Trig.	6	89
History I	Modern European		83
Botany I	General Botany		76
Chemistry I	General Chemistry		77
Agronomy I	General Agriculture		117
Physics I	General Physics		96
Foreign Language	French, German or Latin		
		15	

Sophomore

Education III*a*	Special Methods	3	189
Education IV*b*	School Management and Supervision		189
Group II		3 or 6	71-99
Group III		3 or 6	71-99
Group IV		3 or 6	71-99
		15	

Junior

Education V*a*	History of Education	3	190
Education VI*b*	Secondary Education		190
Philosophy I*a* and *b*	General Psychology	3	94
Electives		9	
		15	

Senior

Education VII	Principles and Philosophy of Education	3	190
Education VIII*a*	Child Study	3	190
Education IX*b*	Practice Teaching		191
Education Special	High School Teachers' Course	1	191
Electives		9	
		16	

ELECTIVES

REGULATIONS.—Upon registration for the Junior year, each student shall submit his choice of electives to the Dean of the College.

No student shall elect more than the required number of electives without the approval of the Dean of the College.

ELECTIVE GROUPS*

II. Language Group.	*III. Philosophy Group.*	*IV. Science Group.*
English,	Psychology,	Mathematics,
Latin,	Ethics,	Agriculture,
Greek,	Logic,	Astronomy,
French,	Bible IV,	Chemistry,
German,	History,	Physics,
Spanish,	Pedagogy,	Geology,
Italian.	Public Law,	Zoology,
	Economics,	Botany,
	Sociology,	Physiology,
	Political Science.	Bacteriology,
		Surveying,
		Mechanics,
		Drawing,
		Descriptive Geometry,
		Manual Training, (See Mechanic Arts)

*See general catalogue, pp. 71-99.

DEPARTMENTS OF INSTRUCTION

EDUCATION

PROFESSOR THACKSTON
PROFESSOR COX
PROFESSOR BUCHHOLZ

EDUCATION I*a*.—*Psychology*.—This is an elementary course designed to set forth the main phenomena of mental life, and furnish the student with the concepts and terms which will constantly recur in his further study. This course will aim especially to prepare the student for the examination on Psychology for the State Certificate. The text-book prescribed from time to time by the State Superintendent of Education will be used in connection with lectures and much reference work to the standard American writers. (*Required of Freshmen; first semester*; 3 *hours*.)

EDUCATION II*b*.—*General Methods*.—This course will have for its main purpose the application of the laws of psychology, as learned in Education I., to the general methods of study and of teaching. The student will be shown the best methods of study that psychological laws indicate and he will be urged to pattern his own habits of study accordingly. The general principles and methods of teaching will be stressed. (*Required of Freshmen; second semester;* 3 *hours*.)

EDUCATION III*a*.—*Special Methods*.—The special methods to be followed in teaching the elementary and grammar school subjects. Stress will be placed upon the special methods for language, history, geography and arithmetic. (*Required of Sophomores; first semester;* 3 *hours*.)

EDUCATION IV*b*.—*School Management and Supervision*—This course is designed to give the practical and theoretical information needed by principals and county superintendents in their supervision of elementary and grammar schools. During the year many practical problems are taken up and fully discussed. Discipline, school and class hygiene, purpose of education, organization and classifica-

tion, grading and promoting—special plans of promotion being discussed—programs, time tables, report cards, plan and progress books, departmental teaching, exercises and intermissions, the recitation, etc. (*Required of Sophomores; second semester;* 3 *hours.*)

EDUCATION V*a.*—*History of Education.*—This course has two main purposes. First, endeavor is made to lead the student to see and appreciate the good things in the many systems of education studied and apply them to his own present-day work as far as possible. In the second place, fine ideals and incentives for devotion to his calling are furnished by studying the lives and works of the great educational leaders. (*Required of Juniors; elective; first semester;* 3 *hours.*)

EDUCATION VI*b.*—*Secondary Education.*—This course is designed especially to give insight into the problems of the secondary and high school. Many problems relating to the high schools in this and other Southern States are thoroughly gone over for the purpose of understanding the present situation and planning for better things. The following special topics may be mentioned: Psychology and Pedagogy of Adolescence, High-School Athletics, History of Secondary Education, High-School Courses, comparative study of secondary education in the different countries, etc. Lectures and reference work supplement the reading of several texts on this subject. (*Required of Juniors; elective; second semester;* 3 *hours.*)

EDUCATION VII.—*The Principles and Philosophy of Education.*—This course attempts to select from modern psychology and sociology all of the facts that will aid the teacher in obtaining a clearer insight into the actual workings of the child's mind in the process of learning. The following are a few of the topics studied: The brain and nervous system, the place of the body in education, attention, interest, imitation, the social, moral and religious aspects of education, etc. (*Required of Seniors; elective; both semesters;* 3 *hours.*)

EDUCATION VIII*a.*—*Child Study.*—The aim of this course is to give the student an insight into the physical

development and growth of the child, the meaning of protracted infancy, the origin and development of instincts, development of intellect, heredity, individuality, abnormalities and the application of facts learned to school work, etc. (*Required of Seniors; elective; first semester;* 3 *hours.*)

EDUCATION IX*b*.—*Practice Teaching.*—Knowledge of the principles, theory and history of education will better fit any teacher for his work, but these without concrete experiences and practice under direction will not give the best results. Realizing this, the course is planned for the purpose of giving this experience under the supervision and watchcare of the professor in charge of the department in which the subject is taught. This practice teaching will occupy the same position in the teachers' course as laboratory work does in the science departments and will have the same proportion of credit as laboratory work. (*Required of Seniors; second semester;* 3 *hours.*)

SPECIAL COURSES FOR HIGH SCHOOL TEACHERS

The following courses are offered by the different departments of the University for the special preparation of high school teachers. Each course will aim to give to the student the teachers' point of view of the subject, and will go over and organize in a general way all the material that the special subject should cover in the high school course. Special attention will be given to the methods of presenting the subjects to a class. The best text-books and reference books will be pointed out along with special books and magazines that have recently appeared on the teaching of the subject. In the sciences the student will have the privilege of handling and setting up the apparatus used in making demonstrations before a class. Besides this he will be required to select lists of the most suitable apparatus for high school laboratories. Practice teaching in the Practice High School will be given to those students who take these courses. In a word, it is the aim of these courses to fit students to begin their teaching in an efficient and satisfactory manner without having to experiment for a year or two.

These courses are open only to teachers in the Junior,

Senior and Graduate classes. Students are REQUIRED to take the course or courses that deal with the subject which they are preparing to teach in the high schools; but none of these courses may be taken by a student until he has made a thorough study of the same subject or subjects in the college classes.

EDUCATION X*a*.—*The Teaching of English.*—A general survey of high school English will be made and the methods of presenting same will be given. Text-book, reference reading, observation and practice teaching. (1 *hour; first semester. Professor Farr.*)

EDUCATION XI*b*.—*Botany in the High School.*—High school botany will be viewed from the teacher's standpoint. Apparatus for laboratory will be selected, field trips planned and made, and best text-books pointed out. Text-books and reference reading required. (1 *hour; second semester. Professor Floyd.*)

EDUCATION XII*a*.—*Methods of Teaching High School Mathematics.*—Text-book, lectures and practice teaching. (1 *hour; first semester. Professor Keppel.*)

EDUCATION XIII*b*.—*High School History.*—Methods and materials used in presenting history to high school pupils. Observation and practice teaching, text-books and reference reading required. (1 *hour; second semester. Professor Bernard.*)

EDUCATION XIV*a*.—*Teaching of High School Physics.*—Methods, the selection of proper apparatus, etc. (1 *hour; first semester. Professor Benton.*)

EDUCATION XV*b*.—*High School Chemistry.*—Methods, lectures, the selection of proper apparatus, etc. (1 *hour; second semester. Professor Flint.*)

EDUCATION XVI*a*.—*Methods of Teaching German in the High School.*—Lectures and reference reading required. (1 *hour; first semester. Professor Crow.*)

EDUCATION XVII*b*.—*Teaching French in High School.*—Methods and devices; lectures and text-books. (1 *hour; second semester. Professor Crow.*)

EDUCATION XVIII*b*.—*Teaching High School Agriculture.*—Making out suitable courses, selecting apparatus for

experimenting, methods of presenting subject. Lectures and required readings. (1 *hour; second semester. Professor Vernon.*)

OTHER DEPARTMENTS

In order to avoid repetition, detailed description of the other subjects that may be taken by students in the Teachers' College are not printed here. The courses in Botany, Chemistry, Economics, English, French, German, History, Latin, Mathematics, Philosophy, Physics, and Zoology, will be found in the section of the catalogue devoted to the College of Arts and Sciences; the courses in Agriculture in that devoted to the College of Agriculture. This catalogue will be sent on request.

STATE HIGH SCHOOL INSPECTION

This division of the college was made possible by the generous aid of the General Educational Board of New York. (See page 15, general catalogue.)

The Dean of the College will visit and inspect the high schools in the State, give what aid he can in the establishment of high schools where they do not exist and help to advance those already established. Where his co-operation is desired, the inspector will take great pleasure in conferring with county superintendents, school boards, principals, teachers and citizens on any educational matter that may tend to the welfare and advancement of the high schools in the State.

THE PRACTICE HIGH SCHOOL OF THE TEACHERS' COLLEGE

This part of the work of the University includes the former Sub-Collegiate Division. Hereafter it will be connected with the Teachers' College and Normal School, and will be used as a practice and model school for the students of this college. Here student-teachers will have opportunity to observe skilled instructors teach the high school subjects, and will also engage in their practice-teaching in those subjects that they desire to teach in the high schools.

ADMISSION.—Only graduates of Junior High Schools, or students who have finished work equal to that of the tenth grade, will be admitted to this High School. The number of students admitted will be limited to from twenty to twenty-five to each year or grade. NO STUDENT WILL BE ADMITTED WHO HAS NOT COMPLETED THE COURSE OFFERED BY THE HIGH SCHOOL AT HIS HOME.

This rule will not be waived for any student except upon the written application of the parent or guardian, accompanied by the endorsement of his high school principal.

The work offered will be that of the eleventh and twelfth grades of the Standard High Schools of Florida. Students will be required to take English and mathematics the third year and English and history the fourth year. This requires eight definite hours in each year. The remaining ten to twelve hours in the third year and eleven to thirteen and one-half hours in the fourth year may be chosen only after consultation with the Dean of the Teachers' College. Not less than eighteen nor more than twenty-two hours may be taken by any student in any one year except by special permission. If a modern foreign language is chosen, it must be pursued for two years.

CURRICULUM

Third Year, or Eleventh Grade

Names of Courses	Nature of Work	Hours Per Week	Description, See Catalogue Page
*English	Rhetoric, Composition and Classics	4	199
*Mathematics	Plane Geometry	4	201
Take from 10 to 12 hours of the following:			
Latin	Cicero (6 orations) and Composition	4	201
German	Elementary Course	4	200
French	Elementary Course	4	199
Science	Physics	4	202
Manual Training	Wood-work	3	201
Agriculture	Elements of Agronomy and Horticulture	3	198
	Required	18 to 20	

Fourth Year, or Twelfth Grade

*English	American and English Literature and Composition	4	199
*History	American History and Civics	4	200
Take from 11 to 13½ hours of the following:			
Latin	Virgil (6 books) and Composition	4	201
Mathematics	Solid Geometry and Plane Trigonometry	4	201
German	Intermediate Course	4	200
French	Intermediate Course	4	199
Agriculture	Elements of Animal Husbandry and Agricultural Engineering	3	198
Manual Training	Forge and Foundry Work	1½	201
	Required	19 to 21½	

* Starred subjects are required of all students.

UNIVERSITY SUMMER SCHOOL

(CO-EDUCATIONAL)

June 16—August 8, 1913.

SUMMER SCHOOL BOARD

STATE SUPT. W. N. SHEATS, A.M., LL.D.
PRES. A. A. MURPHREE, A.M., LL.D.
PRES. EDWARD CONRADI, A.M., Ph.D.

FACULTY (1913)

A. A. MURPHREE, A.M., LL.D.,
President.

JOHN A. THACKSTON, Ph. D.,
Professor of Education and Psychology.

J. H. WORKMAN, A.B.,
Professor of English and Civics.

F. W. BUCHHOLZ, A.B.,
Professor of Foreign Languages.

P. W. CORR, A.B.,
Professor of History and Science.

W. S. CAWTHON, A.B.,
Professor of Mathematics.

MISS JESSIE MORRELL,
Professor of Primary Methods.

C. L. WILLOUGHBY, B.Agr.,
Professor of Science.

COURSES OF STUDY

The following courses of study will be offered:

GROUP I—*Education and Psychology.*—Theory and Practice of Teaching, five hours per week; Psychology, five hours per week; History of Education, five hours per week.

GROUP II—*English.*—Reading and Spelling, two hours per week; Grammar and Composition, four hours per week; Rhetoric, four hours per week; English Literature, four hours per week.

GROUP III—*Foreign Languages.*—Beginners' Latin, four hours per week; Caesar, four hours per week; Virgil, four hours per week; French or German, four hours per week.

GROUP IV—*History and Civics.*—History of United States and of Florida, four hours per week; Civil Government, two hours per week; General History, four hours per week.

GROUP V—*Mathematics.*—Arithmetic, four hours per week; Algebra, four hours per week; Geometry, four hours per week; Trigonometry, four hours per week.

GROUP VI—*Primary Methods.*—Primary Methods, Drawing and Singing. (Time to be devoted to each subject in this group to be arranged by the Instructor.)

GROUP VII—*Science.*—Geography, two hours per week; Physiology, two hours per week; Physical Geography, four hours per week; Botany, four hours per week; Zoology, four hours per week; Physics, four hours per week.

GROUP VIII—*Vocational.*—Agriculture, four hours per week; Nature Study, two hours per week; Manual Training, four hours per week; Domestic Economy, four hours per week.

Not more than one advanced college course can be offered under each of the above groups.

REGULATIONS

The Summer School Board has established the following regulations:

1. That no teacher shall be allowed to take more than twenty hours per week of purely academic subjects.

2. No teacher shall take less than five hours per week of professional work.

3. The maximum hours per week, including professional, vocational and academic subjects, shall, in no case, exceed twenty-seven hours per week. Two laboratory hours to be counted as one hour of academic work.

It is hoped that all teachers will recognize the wisdom of the above regulations. To fulfill its highest mission the Summer School should not be utilized merely for the purpose of "cramming" for examinations.

Attention is directed to the following section of the Summer School Act:

EXTENSION OF TEACHERS' CERTIFICATES

Section Six of a recent Act of the Legislature provides:

"All teachers attending any one of the summer schools herein created and whose work entitles them to credit therefrom upon making proof of the same to any County Superintendent of Public Instruction in this State are hereby entitled to one year's extension on any teacher's certificate they may hold and which has not fully expired."

Under this section of the law, no certificate of credit making proof of the work done will be granted by the State Superintendent and the Presidents of the Summer Schools, except to those teachers who attend the full term and whose work shall be satisfactory to the faculty concerned.

CREDIT TOWARDS NORMAL SCHOOL AND COLLEGE DEGREES

Section Five of Summer School Act is as follows:

"All work performed at the said Summer Schools shall be of such character as to entitle the students doing the same to collegiate, normal or professional credit therefor, and may be applied toward making a degree."

In addition to the courses outlined above one advanced course of college grade will be offered in the following subjects; provided, that a sufficient number of teachers apply for the same:

Mathematics, English, Science (Physics, Botany, Zoology or Agriculture), Latin, History, Education, Psychology.

The entire facilities of the University of Florida are made available for the use of the faculty and students at this Summer School. The libraries, laboratories, dormitories and dining halls will be open for use and the best service is promised.

Board and lodging, including furnished rooms and lights, will be offered at $4.00 per week, payable in advance; or $30.00 for the entire term of eight weeks, payable in advance.

All who expect to occupy dormitory rooms, which in every case are comfortable and commodious, will be expected to furnish bed linen, towels and pillows.

For room reservations and information as to the Summer School, address President A. A. Murphree.

University of Florida

Gainesville, Florida

Commencement Exercises

June 1-3, 1913

Sermon by Stonewall Anderson, D.D.

Address by William Lowe Bryan, Ph.D., LL.D.

Roll of Graduates

Member

of

The National Association of State Universities.

The Association of Colleges and Secondary Schools of the Southern States.

The American Association of Agricultural Colleges and Experiment Stations.

The Southern Intercollegiate Athletic Association.

Registered

with

The Board of Regents of the State of New York.

COMMENCEMENT EXERCISES

EIGHTH SESSION
OF
THE UNIVERSITY OF FLORIDA

Delightful spring weather, the attendance of large audiences, the return of many alumni, the excellence of the student speeches, the presence of the distinguished guests of the University—all these made the eighth annual commencement a truly memorable occasion. An entertainment by the classes in Public Speaking was given on the evening of Saturday preceding the official exercises, which began on Sunday, June 1, with the Baccalaureate Sermon.

Promptly at 11:00 A. M., the academic procession, consisting of the invited guests, the local clergy, the Board of Control, President Murphree and the faculties of the five colleges, the staff of the Experiment Station, and the graduating class in cap and gown, began, at the command of the marshal, Major E. S. Walker, U. S. A., Retired, their march up the center aisle of the enormous Tabernacle to take places on the stage and in the front rows reserved for them.

The music, under the direction of Prof. J. Oscar Miller, was excellent and well befitting the occasion. The religious exercises were impressively conducted by the Revs. John G. Anderson, J. J. Cloar and J. Edgar Wilson. The sermon was delivered by the Rev. Dr. Stonewall Anderson, Corresponding Secretary of the Board of Education of the Methodist Episcopal Church, South, whom Dr. Murphree introduced with a few apt remarks. Dr. Anderson, he said, had come from his far-off home in Nashville, Tenn., to honor the occasion with his presence. A scholar, an orator and a Christian citizen, he had come to bring to the graduates of the year a message from his Master. Dr. Anderson gracefully acknowledged President Murphree's introduction and then delivered the discourse which will be found printed below.

Monday morning was devoted to the annual Contest in Declamation. This was won by Mr. Lewis M. Dow, of St.

Petersburg, Fla., whose selection was entitled "The Real Muckrake Man". At the conclusion of the regular program, Dr. Farr introduced Sister Esther Carlotta, who congratulated the University upon having won for the fifth consecutive year the U. D. C. medal for the best essay upon an assigned topic. The contest, open to any student in Florida, had been won by Mr. Gordon B. Knowles, of Greenwood. The subject for the year was "The Battle of Marianna".

The evening was given over to the annual Contests in Oratory. The winner of the Junior Contest was Mr. N. A. Becker, of Gainesville, Fla., whose subject was "The Commercial Supremacy of America"; the winner of the Senior Contest, Mr. C. P. Diamond, of Cora, Fla., who spoke about "The Brotherhood of Man".

During the afternoon an enthusiastic meeting of the Alumni Association was held, at which officers for the ensuing year were elected. That evening after the Contests in Oratory the alumni and their guests met at the White House for their annual banquet.

Tuesday the graduating exercises were held. Honors won by the students were made known, degrees were given to the large graduating class, and announcements were made for the coming session. The feature of the occasion was, however, the presence of Dr. William Lowe Bryan, of the Indiana University, whom Dr. Murphree introduced as one of the greatest living university presidents, a profound thinker and a polished speaker. His masterly address to the graduates is printed below. This finished, Dr. Murphree declared at an end the most prosperous year in the history of the University.

BACCALAUREATE SERMON

STONEWALL ANDERSON, D.D.
Corresponding Secretary, Board of Education
Methodist Episcopal Church, South
Nashville, Tennessee.

Text, Luke 9-24: "Whosoever shall save his life shall lose it; but whosoever will lose his life for my sake, the same shall save it."

This is one of the sayings of our Lord which arrests attention by its very form. The mind meets it with a question—"How can a man lose his life and save it at the same time?" "Has a man more than one life?"

I take it that the meaning is suggested in the question, "For what is a man advantaged if he gain the whole world and lose himself, or be a castaway?" He sets before us, contrasted, the "world" and the "life," the "soul," the "personality;" and teaches us that man is greater than the world he lives in, and greater than any possible work of his hands.

The Apostle Paul has in mind the same thing when he contrasts the life of the flesh with the life of the spirit; and declares, "to be carnally-minded is death; but to be spiritually-minded is life and peace." It is as if our Lord had said "whosoever will save his merely worldly life will lose his spiritual life, his Christian life, his real life—will lose his soul."

He sets two ways before us and teaches that the price of one is the other. One may ask, "what does it cost to live a Christian?" The answer is, "the worldly, the selfish life." One may ask, "what does it cost to live a sinner?" The answer is, "the spiritual, the unselfish, the Christian life." Whichever we choose, we must pay the price thereof. We are accustomed to think of the Christian life alone as making sacrifice. Not so; life in this world is so framed that sacrifice is inevitable. "Who makes the greater sacrifice, the Christian or the Worldling?" There are both gains and losses to be sustained in living either a Christian or a sinner. It is the age-old problem, the same which confronted the sons of Isaac and Rebecca in the long ago:

"Which shall I choose, the pottage or the birthright, the narrower, near, material good or the wider, more remote, spiritual blessing?"

It would be keeping within the bounds of my text to discuss the losses and gains of the fleshly life, as well as those of the Christian. I wish, however, to discuss the losses and gains of the Christian life only. The text seems to throw the losses to the front, and I shall try to discuss the subject in that way, putting the emphasis upon the losses rather than the gains. The idea that the Christian man is expected to make certain renunciations and to sustain certain losses has come down to us from the earliest disciples, and finds ample expression in the literature of the Church. Just what are the renunciations which Christian men must make, and what are the deprivations and losses which they must sustain? In general I answer, "whatever of hardships, or pain, or sorrow, or anguish of spirit, or evil of any kind, come to men and women because they live Christians may be charged against the Christian life as losses." All such losses must be either in one's person, or in one's relation to the material, or in one's social relations, or in one's relation to God—either in one, or all of these. No loss of any kind can come to any man in this world save in his person, or his property, or from his fellowmen, or from God. Let us examine as thoroughly as we may in the brief time allotted us these possible sources of loss with a view of grasping clearly the nature of our renunciations, crosses and sacrifices, whence they come, and why they are imposed, and also that we may appreciate the gains of the Christian from the same sources.

1. Man's Godward relationships claim our first attention. What loss from God results from being a Christian, what renunciation does He require of us, what restriction of life does He demand, in that sphere of life which bears direct relation to Him? It is God's will that *all* should live the Christian life. He willeth not the death of any, but that all should have peace and pardon and sanctification through repentance, and faith, and obedience. The attitude of the upper world is revealed in this matter by certain parables of our Lord. Said He, "The Kingdom of Heaven is like unto a woman" who lost a coin from the string of coins which she wore about her neck, which unbroken was a sign of her purity and wholeness of life. One day the cord was broken and the coins fell down and rolled away. She hastily recovered them, but on counting them

found one missing. With what concern she lighted her lamp and swept the dark corners and crevices of the room till at last she found it; then with what joy she seized it and running out among her neighbors exclaimed, "Come rejoice with me, for the piece which was lost, I have found." "Likewise, there is joy in the presence of God over one sinner that repenteth." The same attitude is revealed by the parables of the lost sheep and the lost son. There is no infliction of loss or deprivation from God for living a Christian. On the contrary, He becomes the source of the Christian's deepest joy and richest blessings. One vital element of the Christian's strength is the profound consciousness that he is doing God's will, that he is in harmony with God's plans and purposes for his own life, as well as for the world.

2. Turn now to man's second fundamental relation—that which he sustains to the material. This is the relation which has to do with property. I am well aware of the fact that it is the social relation, the presence of man, that gives to *things* their property value. Our question here is, "what renunciations and losses must Christian men suffer in their relation to the material?"

The earth is the present home of the Christian, as it is of other people; and a right good home it is. We have the flowers and the birds; the fertile fields and the teeming sea; the glorious mountains and the broad plains. The earth yields its increase to the tillage of Christian hands, furnishing needed shelter, food, and raiment. There is no want of harmony between God's people and God's world. On the contrary, the material earth will come to its best only in the hands of men and women who are citizens of the Kingdom of God.

Still, some things need to be clearly understood regarding our relation to the material, and the place of mere things in our lives. Wealth is an essential element of civilization, and its creation and accumulation have had, and must continue to have, large place in the lives of all civilized people.

Every man has a master-purpose around which his life is organized. If any man's master purpose is to acquire wealth, he must give that up to become and to remain a Christian. This is not equivalent to saying that every one who accumulates wealth is not a Christian. Not at all. Wealth may, yea, must, be accumulated honestly and used wisely and well by saintly and honest men. The Christian may accumulate wealth, and in large quantities, but he

recognizes and seeks higher values than those which inhere in such possessions. By his godly use of these he transmutes the lower value of things into the higher values of the spirit. He makes of the "mammon of unrighteousness" which he uses but for a day, friends for his everlasting habitation. With reference to the material then, he loses wealth seeking as the supreme organizing purpose of life. Otherwise, the spiritual is made subordinate to the material, thereby subverting the very order of truth. This is not a measure of suppression, but of salvation. How quickly would men wreck the social order if they all made it the supreme aim of life to acquire and possess material wealth. Justice, magnanimity, fraternity, righteousness and love, would perish from off the earth; and with them would go art, and science, and literature, and philosophy, and religion, and all high moral character.

There have been men, here and there, along the pathway of human development, who have seen clearly the pressing problems growing out of man's relation to material values. St. Paul had his mind on these when he declared, "Money is the root of all kinds of evil." Jesus Christ said some things about riches that well might give us pause. A layman, the late Professor William James, has something to say on this subject well worth considering. I quote him as follows:

"Among us English-speaking peoples especially do the praises of poverty need once more to be boldly sung. We have grown literally afraid to be poor. We despise anyone who elects to be poor in order to simplify and save his inner life. If he does not join the general scramble and pant with the money-making street, we deem him spiritless and lacking in ambition. We have lost the power even of imagining what the ancient idealization of poverty could have meant; the liberation from material attachments, the unbribed soul, the manlier indifference, the paying our way by what we are or do and not by what we have, the right to fling away our life at any moment irresponsibly—the more athletic trim, in short, the moral fighting shape. When we of the so-called better classes are scared as men were never scared in history at material ugliness and hardship; when we put off marriage till our house can be artistic, and quake at the thought of having a child without a bank account and doomed to manual labor, it is time for thinking men to protest against so unmanly and irreligious a state of opinion.

"It is true that so far as wealth gives time for ideal ends and exercise to ideal energies, wealth is better than poverty and ought to be chosen. But wealth does this only in a portion of the actual cases. Elsewhere the desire to gain wealth and the fear to lose it are our chief breeders of cowardice and propagators of corruption. There are thousands of conjunctures in which a wealth-bound man must be a slave, while a man for whom poverty has no terrors becomes a freeman. Think of the strength which personal indifference to poverty would give us if we were devoted to unpopular causes. We need no longer hold our tongues or fear to vote the revolutionary or reformatory ticket. Our stocks might fall, our hopes of promotion vanish, our salaries stop, our club doors close in our faces; yet, while we lived, we would imperturbably bear witness to the spirit, and our example would help to set free our generation."

Through the length of its entire history, wealth has dragged after it a long chain of corrupting influences. It has certainly earned for itself the names of reproach which have been given it, such as "filthy lucre" and the "mammon of unrighteousness." Ease, effeminacy, self-indulgence, voluptuousness; and all sorts of political, ecclesiastical, and social corruptions have been and are now, seemingly, inseparably attached to wealth. Men have seen clearly the ruinous evil of these close and bad companions, and have proposed various remedies. Devout men and women, in both Christian and pagan lands, have attempted to cut the Gordian Knot by consecrating their lives to poverty. This method has shown in individual cases, that "the life is more than meat, and the body, than raiment, and that a man's life does not consist in the abundance of that which he possesseth;" still, it does not, and cannot, solve the problem of right relations between man and material values. Others seek a solution in the abolition of all property rights except as these are invested in groups; as the community, the municipality, the state. This method has recorded so many failures, that it cannot command our confidence and support.

As I see the matter, the task confronting us must be worked out in two ways.

Operating in the field of wealth-getting is the burglar, the yeggman, the gambler, and trader in human passions, appetites, and weaknesses, the confidence man, the exploiter of human life, the business freebooter, the grafter, and

so on and so on. This whole brood of foul "money changers" must be scourged from all the temples of society, and their methods consigned to an eternal oblivion. Then, too, there is before us the high task of the upbringing of a generation of men and women who are able and willing to create and to amass wealth in perfectly legitimate and helpful ways; and who are in themselves consciously superior to any and all material values, and who are large enough and strong enough to use their wealth not to gratify their own lusts and passions, nor to corrupt their fellowmen, but to alleviate suffering, to remove cramping and degrading limitations, to abolish poverty, to enlighten minds, to strengthen character—in a word, to bring in the kingdom of God. The task suggested here is a great one; but the quickening conscience of the American people, as well as the people of other lands, together with an increasing number of men and women who already live on this high plane and who fashion their lives according to these ideals, lead us to believe that it is not an impossible one. Besides, we must remember that the very "stars in their courses will fight" for its accomplishment.

3. What losses must the Christian suffer in the relation which men sustain to each other? At this point we approach the very center of our subject. Men live together in groups; they are in pairs, families, tribes, clubs, communities, towns, nations, and races. Each individual is rooted in one or more of these groups. Each is a sharer in part of the life of the whole of which he is a member. Disturb seriously the relation between the individual and the groups in which his life is rooted, and there is suffering and loss. Christianity has (and does now, where circumstances are of a certain sort,) called upon its adherents to suffer this kind of loss. Jesus taught and warned His disciples of coming deprivations, trials, sufferings, and even death. "Behold, I send you forth as sheep in the midst of wolves; be ye, therefore, as wise as serpents and as harmless as doves. They will apprehend you and drag you before governors, councils, and kings, for my sake, and they will kill you." "Think not that I am come to send peace on earth; I am come not to send peace, but a sword." "For I am come to set a man at variance with his father, and the daughter against her mother, and the daughter-in-law against her mother-in-law. And a man's foes shall be they of his own household."

The experience of Jesus is to the same effect. With what hope and buoyancy He began His ministry! But the clouds soon thickened, hostilities gathered around Him. The wrath of the people rose higher and higher till it beat in violence upon His head and compassed His death.

The early church was true to both the teaching and example of its Lord. Soon after Pentecost, when Peter and John had created a stir in Jerusalem by healing the cripple at the gate of the temple, they were called before the Council and charged to cease speaking and preaching Jesus and the resurrection. Peter answered, "Whether it be right in the sight of God for us to hearken unto you more than unto God, judge ye. For we cannot but speak the things which we have seen and heard." And onward they and their successors went in the Christian way, suffering slights, hardships, deprivations, imprisonment, and even death, at the hands of men, for Christ's sake.

What was that going on there that demanded such self-denial, such cross-bearing, such courage, such heroism, such cost in terms of social values? It is a serious thing to inject into the life of a people that which divides the members of a family from one another, separates members of a community, and leads men to defy both ecclesiastical and civil authority. What sort of task is it that justifies these things? What were these men doing that they were turning their social world upside down? They were laying deep the pillars of the church of the living God. They were planting the seeds of new and better governments yet to be. They were putting in and cementing with their own blood the foundations of the Kingdom of Heaven. They were constructing the beginning of a new order of human life. Then, thrusting in the sword of division is justified. Then, the call to follow Christ through suffering, sorrow, cross-bearing, and death, is justified by the mighty task which they were engaged in. It was better for them to die at such labor than to live quietly and contentedly in the old way; better for them and better for the world.

If we are to understand and to appreciate the emphasis which the writers of the New Testament everywhere place on self-denial, cross-bearing, and suffering, we must bear in mind that the Church was planted in the midst of a hostile community. The hopes, fears, beliefs, convictions, worship, spirit, and life of the Christians were opposed to those dominating the ruling element of the people among whom they lived. The church had not proceeded far on its course

before prejudice, and hatred, and wrath were kindled against it, and most determined efforts were made to stamp it out of existence. While the efforts to destroy the early church were not successful, untold hardships and sufferings were endured by the Christians at the hands of those who controlled the agencies of social power and authority. The Church's very life hinged upon the ability to resist the onslaughts of the ruling powers. No wonder, therefore, that the virtue of mere resistance, with the hardships, losses, and crosses, incident thereto, became over-emphasized. So that men came to believe that renunciation, hardship, and cross-bearing were an end in themselves, possessing independent value and merit. We are able to see from our vantage ground that the cross is not primarily a symbol of suffering, but of progress, and that where cross-bearing is unrelated to progress, it is devoid of meaning and value.

But what of our losses growing out of our relation to our fellowmen? It is a far cry from Cæsar Augustus to Pontius Pilate and Caiaphas to Woodrow Wilson, William Jennings Bryan, and the rest. In our favored land it is different. In some places, however, the case is now as it was then. We worship God under our own "vine and fig tree," without fear of molestation. The very governments of Christendom have been tempered by the touch of the Christ. So that we are no longer in danger of being hailed before magistrates and governors to give an account of our loyalty to Christ and to His Kingdom. While many of the social groups of our land are not thoroughly Christianized yet, they have so felt the influence of Christ that the members when professing Him, are not cut off, or molested, or persecuted. There are some groups still in our midst that one cannot live in and share their life and follow Christ. I have been told that there are some homes which fall into this class. Members of these in becoming Christians, even now, must feel the keen edge of our Lord's sword of division. They must partake of that renunciation and cross-bearing experienced to the full by the early church.

Our danger is not that we shall be imprisoned or put to death for our faith, but that we shall fall a prey to the subtle seductions of a refined and partially Christianized world. Let us never forget that ours is the same high task which engaged the disciples of old. The task begun by them is by no means finished. God needs men still with iron in their blood and with nerves of steel, and hearts of

heroes in their breasts, to carry on the great work begun by apostles and disciples who literally mingled their blood with their toil.

Political, Military, Commercial, Ecclesiastical, and Social preferment are the necessary accompaniments of organized society. These are prizes which men seek with avidity. What of the relations of the Christian man to these social boons? Most certain it is that his Christianity does not unfit him for the occupancy of high and responsible positions in life. It is equally certain that the larger the number of able, efficient, consecrated, Christian men who can be secured to fill places of responsibility, authority and trust, the better it will be for any social order. This lesson is to be learned more and more by the people of the earth. Is a Christian justified in making the desire to win social position the organizing purpose of his life? Most certainly not. He must associate the desire for preferment and place with a larger purpose. His first concern must be to "seek the Kingdom of God" or, which is the same thing, to render efficient, unselfish service to his fellowmen.

4. In the last place, the losses in our personal life will claim our attention. To live a Christian means to give up sin. Or, to put the matter in another way, the Christian life demands the giving up of certain habits, if they have been acquired, of thought, speech, and conduct. These I shall not name. It is not necessary. All men early in life begin the formation of personal habits. Some of these are good; some bad. Men easily slip into enervating, vicious habits, in the gratification of their desires and passions. The Christian life demands the giving up of these. No doubt there is a decided sense of loss felt, for a time, by those who lop off habits of this kind. My contention, however, is that the giving up of vicious habits is not a loss, but a real gain. Life without them is in every way better than with them. One is a better student, a better teacher, employee, a better employer; a better servant, a better master; a better son, a better father; a better brother, a better friend; a better man in every way. To help us to get rid of such habits and to aid us to such self-mastery that we shall be proof against their formation is one of the objects of our religion.

Being a Christian means the surrender of self to Christ. "If any man will be my disciple, let him deny himself, take up his cross, and follow me." Now this is extremely difficult to do. I have in my home a boy eight years of age.

From the beginning of his life he has desired intensely to have his own way; he has a mother who wishes her own way; and he has a father who wants his own way. In fact, he belongs to a race, an ever-present trait of which is to do as it pleases. We are self-centered; selfish to the core. There must be self-surrender to Christ. Self-surrender means the willing domination of Christ in both the inner and outer life. There are those who hold that such surrender and domination is contracting to personal life, and hence, a distinct loss. I am free to confess that the domination of one by another mere man would be degrading, and, therefore, intolerable. The commitment required is an acknowledgment that in the bewildering maze of human life, ourselves and our guidance in certain fundamental matters are intrusted to another. Everything depends upon who that *other* is.

I deny that there is any loss or contraction of personality in the commitment of the life to Jesus Christ. If it be contended that there is, then it must be suffered in the realm of either the intellect, or the affections, or the will—in one or all of these.

There have been intellectually narrow people who were devout Christians; and there are now. That there have been ecclesiasticisms which tended to suppress intellectual development and enlargement of knowledge, I do not attempt to deny. That the world has seen the last of intellectual intolerance, I do not affirm. But that the domination of the personality by Christ tends to suppress either intellectual development or investigation is not now and never was true. The cleanness of inner life, the saneness of mind, and the poise of character demanded of a Christian are conducive to intellectual development. All realms of knowledge, material, social, and divine, are open to him! No avenue of investigation is closed to him, nor is he in any wise hindered or fettered by the domination of his life by Jesus Christ—who Himself is truth incarnate. From the advent of Jesus of Nazareth into the world even unto this hour, He has been a quickener of the intellects of men. The very effort to understand and to construe Him is a perennial source of intellectual inspiration.

Fortunately in this matter, the testimony of history comes to our rescue. Has the effect of submission to Christ been to weaken thought, or to impoverish feeling, or to enfeeble the will? Where Christ is believed in, obeyed, and loved, have we not the most learned, the purest, strongest,

noblest personalities of our human race? The effect of His domination is not to contract, to impoverish, to enslave, but rather to release our powers, to inspire personal initiative, to enlarge and to enrich our lives, both personal and social. He has not come to destroy, but to fulfil, to perfect. "I am come that ye might have life", intellectual, affectional, practical, and social—abounding life.

The early disciples sometimes set that which they lost over against that which they gained in becoming Christians. Peter seemed to be exercised about the matter on one occasion—"We have forsaken all and followed Thee; what shall we have therefor?" Then said the Master, "Everyone who has forsaken houses, or brother, or mother, or wife, or children, or lands, for My name's sake, shall receive an hundredfold, and shall inherit everlasting life" —which teaches the deathless truth that it is infinitely worth while to follow Christ.

The Apostle Paul had occasion to contrast his losses with his gains in becoming a Christian. Few men ever gave up more than he. He had to turn his back on kindred and friends. He gave up places of emolument, and honor, social distinction and prestige. How did he regard these losses? Said he, "I count all things but loss for the excellency of the knowledge of Christ Jesus my Lord, for whom I have suffered the loss of all things, and do count them but refuse that I may win Christ. . . . . "

For, after all, the Christian's is the large, the full, the magnanimous life. For "All things are yours, whether Paul, or Apollos, or Cephas," whether Protestant, or Catholic; whether Presbyterian, or Methodist, or Baptist, "or the world, or life, or death; or things present, or things to come; all are yours, and ye are Christ's, and Christ is God's."

ADDRESS TO THE GRADUATES

President William Lowe Bryan, Ph.D., LL.D.,
Indiana University, Bloomington, Indiana.

Young Gentlemen:

It is a great and sincere pleasure to witness the progress of the University of Florida. It must be now about one hundred years since Thomas Jefferson conceived and expressed his ideal of a State system of education, culminating in the State University. I have heard it said by President Jesse of the University of Missouri, that nothing had been done in these hundred years which Thomas Jefferson did not foresee and encourage, and what he actually did, it would seem, in the founding of the State University of Virginia, gave him a more profound satisfaction than to remember that he had been President of the United States, for he wrote his epitaph as it stands there to-day, saying nothing of the distinguished honor done him by the people of the United States, but recording as one of the three great activities of his life, that he was the founder of the University of Virginia.

Florida has had almost alone among the States—perhaps quite alone—the wisdom and high courage to turn back from the false path—the hopeless path—of having many State educational institutions, in order to have a State University in which all parts of the University could be represented. It is a great satisfaction to see the progress which she has made, and it is a safe prediction that in the years to come—in the near years to come—this University will justify the wisdom of the people of Florida in its establishment, in a larger and larger measure.

My subject to-day is "Education by Occupation". I believe that the most important influence affecting any community is the outlay of occupation which the people follow for a livelihood, and that the most important influence affecting a young man is the occupation which he chooses to follow for a livelihood.

In the outset, I beg to remind you that every important occupation has been made what it is by a guild—by

an ancient guild whose history stretches back, in direct or indirect succession, to the farthest antiquity. Every such historic guild of artisans, scholars, lawyers, prophets, what-not, rose, one may be sure, to meet some deep social necessity. In every generation those necessities were present, demanding each the service of its share of the population, demanding each the perpetuation of its guild. And because in the historic arts and crafts and professions mankind has spent in every generation all that it had of drudgery or of genius, it has won in them its whole estate. The steel mill, the battle ship, the court of justice, the university—these and the like of them are not accidents, nor miracles of individual invention, nor products of the vague longings and gropings of society in general. They are each the product of a brotherhood, of generations working to meet one social necessity, of an apostolic succession of masters living in the service of one ideal. And so, young gentlemen, it is these brotherhoods of labor—it is these grim brotherhoods, covered with grime and scars, that stand before you to-inviting you to initiation.

The fact that an occupation can teach its far-brought wisdom to the men of each generation makes civilization and progress possible. But this on one condition, that many of the people, and some of the best of them, shall be able to make that occupation their life business. The law is not in a country, when you have imported Blackstone's Commentaries and the Statutes of Parliament. The law is in a country in the persons of such lawyers as are there. It is there in John Marshall.

Religion is not in a country because we have built a church and furnished cushions to sleep on once a week. It is there in Bishop Brooks and Mr. Moody and the Salvation Army.

The steel business is not in Pittsburg in an industrial museum which the public may gad about in on holidays. It is there in the men who earn their living by knowing each year better how to make armor plate.

All this ought to be a matter of course. But there are those who think that science and art can be made to serve at a cheaper price; that these stern guilds will give up their treasures in extension lectures and Chautauqua clubs and twenty minutes a week in the public schools. History will show, I think, that this is not true; that no art and no sort of learning was ever vitally present among a people, unless it was there as a living occupation.

Learning has come to us in this sense only within the last quarter century. We were busy at other things before that. Our fathers were doing, as every people must, what they had to do. They had to live, to establish a government and maintain their fundamental faiths. They bent themselves to their tasks with the energy of our breed, and the tasks have shaped our national history and character. They gave us the Declaration of Independence and the American farmer, who takes for granted that its principles are true. They gave us Chicago, the Amazon, who stands yonder with *I will* written upon her shield, and a throng of men who are fit to serve her well. They gave us a civil war, men who could fight, and afterwards live together in peace. They gave us industry, law, democracy—but not science, not art. These were not wholly absent, but they were guests. They were here in the persons of a few men who, in spite of all difficulties, did work at them as a life business.

In the far Western village where I lived, for example, there were before the war two men who brought there English classical learning—one who more than fifty years ago had been trained in the universities of Europe, and one whom the radical instinct which set science going in the first place, called from a village academy into membership in the international guild of scholars. What these men did for sound learning, and what they did through their pupils to uplift every occupation in the State, it is wholly beyond my power to measure. But one thing they could not do. They could not furnish to society more men who should devote themselves to learning than society would furnish a living for. And the bare fact is that there was a living for a very few such men in America in the days before the war. Within the quarter century there has been a change in this respect, and so great that none fail to see it. The millions that we have spent upon universities and high schools, the vast plant of buildings and libraries and laboratories, fill the public eye with amazement. But all this is the husk of what has happened. The real thing is that these millions, this vast plant, these thousands of positions demanding trained men, have brought to life upon this ground the guild of scholars. We do not need any more to exhort men to become scholars. The spirit which was in Thales and Copernicus, in Agassiz and Kirkwood, calls to the farm boy in its own voice, and shows

him a clear path by which, if he is fit, he may join their great company.

And, if I am not mistaken, Art, which has also been a guild, is ready at last to become a citizen. Why should it not? What is lacking? Yonder are the works of art, and the men who know. Here are the youths, some share of whom by rights belong to the service of art. And here are the millions which go to support man in every mole hole of scientific research; here other millions spent stupidly and wantonly for whatever the shopkeepers tell us is beautiful. We could not create these potential forces that make for art, but we can organize them, as Jordan and the like of him less than twenty years ago organized the forces that made for science. We can make a path through the school and the university, along which all the children of the State may go as far as they will, and along which those who are fit may enter the artist's life.

"The mission of society", says Geddes, "is to bring to bloom as many sorts of geniuses as possible." And this it can do only when each sort of genius has the chance to choose freely its own life occupation.

Here, as I think, is a programme for our educational system—to make plain highways from every corner of the State to every occupation which history has proved good.

However, as matters actually stand at present, it is your good fortune, young gentlemen, to have a wide range of occupations among which to choose. It is no light matter to make the choice. It is to elect your physical and social environment. It is to choose where you will work, in a scholar's cloister, on a farm, or in the cliffs of a city street. It is to choose your comrades and rivals. It is to choose what you will attend to, what you will try for, whom you will follow. In a word, it is to elect for life, for better or for worse, some one part of the whole social heritage. These influences will not touch you lightly. They will compass you with subtle compulsions. They will fashion your clothes and looks and carriage, the cunning of your hands, the texture of your speech and the temper of your will. And if you are wholly willing and wholly fit, they can work upon you this miracle,—they can carry you swiftly in the course of your single life to levels of wisdom and skill in one sort, which it has cost the whole life history of your guild to attain.

But there is, of course, no magic in merely choosing an occupation. If you do nothing to an occupation but

choose it, it can do nothing at all to you. If you are an incorrigible lover of the holiday, so that the arrival of a working day makes you sick—if every task thrust into your hands grows intolerable—if every calling, as soon as you have touched its drudgery, grows hateful—that is to have the soul of a tramp. It is to be stricken with incurable poverty. You turn your back upon every company of men where anything worth while is to be done. You shut out of yourself every wisdom and skill which civilized work develops in a man. And you grow not empty, but full, choked with evil life. Wretched are they that hunger and thirst after nothing good, for they also shall be filled. Herein is democracy—that whether you are a beggar's son or the son of Croesus, you cannot escape from yourself—you cannot bribe or frighten yourself into being anything else than what your own hungers and thirsts have made you. It is somewhat better, but far from well enough, if you enter many occupations, but stay in none long enough to receive thorough apprenticeship. It is so ordered that it is easy for most of us to make a fair beginning at almost anything. In the rough and tumble of babyhood and youth, we all accumulate experiences which are raw material for any and every occupation. So when one of them kindles in you a light blaze of curiosity, you have only to pull yourself together, you have only to mobilize your forces, and you are presently enjoying little successes that surprise and delight you and that may give you the illusion of mastery.

Doubtless the World Soul knows his own affairs in ordering this so. For one thing, the easy initial victories are fine baits—lures by which youths are caught and drawn into serious apprenticeship. For another thing, the influence of each occupation upon society in general must be exercised largely through men who carry some intelligence of it into other occupations.

But if a man flits from one curiosity to another, if for fear of being narrow and with the hope of being broad, he forsakes every occupation before it can set its seal upon him, if he is through and through dilettante, jack-of-all trades, he is a man only less poverty-stricken than a tramp. He has the illusion of efficiency. He wonders that society generally judges that he is not worth his salt; that on every battlefield Hotspur curses him for a popinjay; that in every company of master workmen met for council, he is at most a tolerated guest. The judgment upon him—not my judgment, but the judgment which the days thrust in his face is

this, that when there is important work to be done, he cannot do it. He is full of versatility. He knows the alphabet of everything, chemistry, engineering, business, law, whatnot. But with all these he cannot bridge the Mississippi. He cannot make the steel for the bridge, nor calculate the strength of it, nor find the money to build it, nor defend its interests in court. These tasks fall to men whom twenty years' service in their several callings have taught to speak for society at its best. And while their work goes on its way, the brilliant man who refused every sort of thorough training which society could give him, can only stand full of wonder and anger, that with all his versatilities he is left to choose between the drudgery of unskilled labor and mere starvation.

There is another sort of man who will learn little in any occupation because he is wholly bent upon being original. The past is all wrong, full of errors, absurdities, iniquities. To serve apprenticeship is to indoctrinate himself with pernicious orthodoxies. We must rebel, we must begin at the beginning. We must do something entirely new and revolutionary. We must rely upon our free souls to see and to do the right, as it has never been seen or done before. Some such declaration of independence, some such combination of hopeless pessimism about all that has been done with confident optimism about what is just to be done, one finds in men of every art, craft and calling. We are to have perpetual motion. We are to square the circle. We are to abandon our present political and religious and educational institutions and get new and perfect ones. Above all, the children must grow up free from the whole array of social orthodoxes. We are to escape from the whole wretched blundering past, and by one bold march enter a new Garden of Eden.

There is something inspiring in this, something that stirs the youth like a bugle, and something, as I believe, that is essential in every generation for the purification of society. The past is as bad as anybody says it is, woven full of inconsistency and iniquity. We *must* escape it. We *must* fight it. And it is no doubt inevitable that there should be some who think that they owe it nothing but war.

And yet, for my part, I am convinced that this is a fatally one-sided view of things. Is there in existence one great work of any sort which owes nothing to the historic guild which does that sort of work? Is there one great man in history who gave to the future without getting any-

thing from the past? The bare scientific fact is that *no* man escapes the tuition of society. The crank does not escape. The freak does not escape. They miss the highest traditions of society, only to become victims of lower and lower traditions. Whether such a man have genius or the illusion of genius, it is his tragic fate to have the best that he can do lie far down below the best that society already possesses.

It has been said that the greatest mark of a man of genius who marks out new paths for society, is that he, better than others, reads the meaning of the past, and upon this reading, bases his prophecy of the future. And if you remember, the greatest Reformer, the greatest Maker of new paths, lays it down as His principle, "I am not come to destroy the law, but to fulfill."

At this point I beg to recall the discrimination between the work to which one gives his attention and the great swarm of activities, physical and mental, which are always going on in the background, and I make this distinction for the benefit of anyone who does not belong to the three classes which I have mentioned. A boy who is driving nails into a fence has for the immediate task of his eyes and hands the hitting of a certain nail on the head. But meanwhile, the rest of the boy's body and soul may be full of rebellion and longing to be done with the fence on any terms and away at the fishing. Or instead of that the whole boy may be full of pride in what he has done and of resolution to drive the last nail as true as the first. Which of these two things is the more important—the task in the foreground or the disposition in the background, I do not know. They cannot be separated. They are both present in every waking hour, weaving together the threads of fate.

A man's life is not wholly fortunate unless all that is within him rises gladly to join in the work that he has to do. It is, however, unhappily true that many good and useful men are forced by circumstances to work at one thing, while their hearts are tugging to be at something else. They have not chosen their tasks. They have been driven by necessity. There must be bread. There are the wife and the children. There is no escape. It is up with the sun. It is bearing the burden and heat of the day. It is intolerable weariness. It is worse than that. It is tramping round and round in the same hated steps until you cannot do anything else. You cannot think of anything else. They sound in your dreams—those treadmill steps

arousing echoes of bitterness and rebellion. You cannot escape from yourself. You cannot take a vacation. You may grow rich and travel far and spend desperately, but the baleful music will follow you to the end, the music of the work you did in hate. This is the tragedy of drudgery, not that you spend your time and strength at it, but that you lose yourself in it.

But at the worst, this man is no such poverty stricken soul as the crank, the tramp at the jack-of-all trades. If his occupations were worth while, these hated habits are far from deserving hate. If they are habits by which a man may live, by which one may give a service that other men need and pay for, their value is certified from the sternest laboratory. The drudge has a right to respect himself. He has the right to the respect of other men, and I give mine without reserve. I say that he who holds himself grimy for life to a useful commonplace work which he hates, is heroic. It is easy to be heroic on horseback. To be heroic on foot in the dust, lost in the crowd, with no applause, that is the heroism which has borne up and carried forward all the work of civilization.

We honor the drudge, but deplore his fate. And yet there are many who believe that there is in fact no other fate for any man; that every business is in the long run a belittling business; that whether you are a hod carrier or a poet, as you go on in your calling, as Wordsworth says, "shades of the prison house will close upon you and custom lie upon you heavy as frost and deep almost as life."

Let us look at this deep pessimism at its darkest. The imperfect, that is everywhere, that is all that you can see or work at. That is in the warp and woof of all your occupations and institutions, your politics, your science, your religion. They are all nearly as bad as they are good. Your science has forever to disown its past. Your politics demands that you shall be *particeps criminis* in its evil as the price of a position in which you can exert any influence. Your historic church is almost as full of Satan as of Christ. And when you have spent your bit of life in any of these institutions or occupations, they are not perfect as you had hoped.

You emancipate the slave, and the negro question still looks you in the face.

You invent printing, and then must say: "Have I brought man advantage or hatched, so to speak, a strange serpent?" You establish a new brotherhood for the love

of Christ, and presently they are quarreling which shall be chief, or hailing men to prison in the name of Him who came to let the oppressed go free. And you, yourself, for reward, will be filled with the Everlasting Imperfect which your eyes have seen and your hands have handled.

The essential tragedy of life, according to this deep pessimism, is not in pain and defeat, but in the emptiness and vanity of all that we call victory. "Then I looked on all the works that my hands had wrought and on the labors which I had labored to do, and behold, all was vanity and vexation of spirit and there was no profit under the sun."

I suppose that every man's faith is the outgrowth of his disposition, and mine makes me believe that the truth embraces all the blackest of this pessimism and also the victory over it. I admit and declare that our case is as bad as anybody has found it to be. In a generation which soothes itself with the assurance that there is no hell, I am one who fears that its fire is leaping through every artery of society. And yet I have never a doubt that there is a spirit which may lead a man through any calling always into more of the life and freedom of the Kingdom of God.

For one thing, it is necessary, if you are to have the best fortune, that your calling at its best, the best that it has done, the best that it may do, should lay before you a programme of tasks, the first of them lying definitely before you and within your power, the others stretching away into all that a man can do in that sort. This is no treadmill. This is a ladder, resting on the ground, stretching toward heaven.

For another thing, if you are to have the best fortune, you must delight in your work. Your heart and body must be in it, and not tugging to be away at something else. You do not then deal out to each bit of work its stingy bit of your attention. You delight in the thing. You hover and brood over it like a lover and lavish upon it the wealth of uncounted hours.

The sure consequence is that you are not doing the same things over and over and growing the same habits deeper and deeper. Habits cannot stand in this heat. They fuse and flow together. They are no longer chains. They are wings. They lift up and bear you swiftly and joyfully forward. This is indeed the life of joy. You have the joy of efficiency. You have the joy of doing the best you had hoped to do, and it may be that once again you will be set shaking with delight because something written by you

has turned out a better bit of work than you had thought possible.

And if, besides all this, the background of feeling and will in you is wholly right; if, by the Grace of God, you have learned to work in delicate veracity, stern against yourself, loyal to the perfection whose veils no man has lifted; if the far vision of that perfection touches you with humility, mans you with courage, and makes you leap glad to meet the tasks which are set for you,—what is this but entrance here and now into the Kingdom of God?

And if this crowning grace comes to you, as it may in any calling—it came to Uncle Tom—you will not, I think, believe that the *Logos* who has called our race out of the earth to behold and share in his creation is a dream, a mockery of our despair, as we make the last useless turns about the dying sun.

If this is your fortune, you will not think that all your hands have wrought is vanity, but you will see that He knew the truth who said: "My Father worketh hitherto and I work. The works that I do shall ye do also and greater works than these shall ye do, because I go unto the Father."

ROLL OF GRADUATES

Master of Arts in Education

Neal, Marvin Llewellyn, A.B., Emory College ..... Donnie, Fla.
O'Haver, Pleasant Clator, A.B., DePauw University ..... Palatka, Fla.

Master of Science

Davis, Albert Gainer, B S., University of Florida ..... Chipley, Fla.
Loftin, Ulphian Carr, B.S.A., N. C. A. & M. College ..... Chapel Hill, N. C.
O'Byrne, Frank McCord, A.B., Miami University ..... Oxford, Ohio

Bachelor of Arts

Douglass, Rhodas Clyde ..... Pensacola, Fla.
Elliott, Walter Gowan ..... Tampa, Fla.
Henderson, Charles William ..... Tampa, Fla.
Jarrell, Robert Lee ..... Kissimmee, Fla.
Laffitte, Lincoln Sydnor ..... Lloyd, Fla.
Leitner, Sumter ..... Kissimmee, Fla.
Morgan, Louie Robert ..... Arcadia, Fla.
White, Robert Ray ..... Starke, Fla.
Wilson, Robert Borden ..... Bartow, Fla.

Bachelor of Arts in Education

Blanton, Robert Solter ..... Plant City, Fla.

Bachelor of Science

Casler, Eugene Terry ..... Jacksonville, Fla.

Bachelor of Science in Agriculture

Swartz, Howard Villeroy ..... Sanford, Fla.

Bachelor of Science in Civil Engineering

Rowlett, Caius Augustus ..... Palmetto, Fla.
Shands, Alvin Glen ..... Gainesville, Fla.
Thrasher, Leon Brooks ..... Micanopy, Fla.
Vidal, Albert ..... Gainesville, Fla.

Bachelor of Science in Mechanical Engineering

Macintosh, Stuart ..... London, England
Taylor, Earle Abbott ..... Gainesville, Fla.

Bachelor of Laws

Brooks, Arthur Cecil ..... Lake Butler, Fla.
Clayton, Orlando Jay ..... Aucilla, Fla.
Cox, Boyd Abel ..... Vernon, Fla.
DeVane, Enoch Clayborne ..... Plant City, Fla.
Diamond, Charles Peter ..... Cora, Fla.
Garrett, George Palmer ..... Kissimmee, Fla.
Gibson, James Bond, Jr. ..... River View, Fla.
Godwin, John Luther ..... Lyons, Ga.
Hocker, Frederick Roche ..... Ocala, Fla.
Householder, Ernest Ferguson ..... Manatee, Fla.
Kennedy, Walker McMillan ..... Umatilla, Fla.
Langston, Bernard Gainer, A.B., University of Florida ..... Chipley, Fla.
Lawler, Samuel Watson, Jr., A.B., Southern College ..... Tallahassee, Fla.
Magaha, Earnest Marion ..... Jay, Fla.
Mathis, Bascom Vernando ..... Bonifay, Fla.
McCaskill, James Marshall ..... Plant City, Fla.
Miller, Oscar Samuel, A.B., University of Florida ..... Folkston, Ga.
Phipps, Claibourne McC., A.B., University of Mississippi ..... Terra Ceia, Fla.

CERTIFICATES

Two-Year Short Course in Agriculture

Means, David L. ..... Fort White, Fla.
Nieland, Louis Theodore ..... St. Johns, Fla.

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